

FLORIDA WILDLIFE[®]

Volume 41, Number 4

July-August 1987





DON'T SINK THE GOOD TIMES

LEAVE ALCOHOLIC BEVERAGES AT HOME



FLORIDA WILDLIFE®

Volume 41, Number 4

July-August 1987



Wild Turkeys, page 15.



Angling After Hours, page 11.

John M. Waters Jr.
Editor

Wilderness Graphics
Art & Production This Issue

Paige Moody
Assistant Editor

Mary Beth Savage
Circulation Manager

Steven O. Lewis
Laverne Roberts
Circulation Assistants

William A. Greer
Contributing Photographer

Sharon Marshall
Word Processing Center
Electronic Typesetting

Rose Printing Company Inc.
Commercial Printing

Florida Color Graphics Inc.
Color Separations



FLORIDA WILDLIFE

© Florida Game and Fresh
Water Fish Commission 1987
Publisher

- 2** Cottontails and Corn Fields, By Paul M. Allen
- 5** Sign of the Bear, By John Wooding and Tom Hardisky
- 7** Our Night In Aldo Leopold's Shack, By Dale Crider
- 11** Angling After Hours, By Bob McNally
- 15** Florida's Wild Turkey Heritage, By Neal Eichholz
- 19** Delicate Balance—Eastern Indigo Snake, By Paul E. Moler
- 20** 1987-88 Hunting Seasons
- 22** A Special Offer From FLORIDA WILDLIFE
- 24** Wildlife in Art: This Year's Wildlife Art Competition
- 26** Florida's National Wildlife Refuges, By Raymond DeLeon Powers
- 31** Bassing the Man-Made Structures, By Larry Larsen
- 35** Florida's Freshwater Fish Record Update
- 36** Growing Up With a Sense of Ethics, By John Waters Jr.
- 38** Snapper, By Verle Barnes
- 44** The Emerging Naturalist, By Judy Gillan and Swannee Nardandrea

DEPARTMENTS

- 41- It's The Law
- 42- Hunter Education News
- 43- Outdoor Library
- 46- Conservation Update

THE COVERS

The charming pair of bobwhite quail shown in their natural habitat on our covers is from a painting by Charles Rowe. To find out how you can own a signed, numbered print of this beautiful wildlife art, turn to page 22.

FLORIDA WILDLIFE (ISSN 0015-4369) is published bimonthly by the Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600. Second-class postage paid at Tallahassee, Florida. Post Office Publication Number 202440. MATERIALS IN FLORIDA WILDLIFE include copyrighted materials which are property of individual contributors. Written permission to use the publisher's materials will be granted routinely by the editor for noncommercial, public informational purposes. MANUSCRIPTS AND PHOTOGRAPHS are received only with the understanding that the publisher assumes no responsibility for any loss or damages. Contributors should request "HOW TO SUBMIT" before sending materials. SUBSCRIPTION PRICES (sales tax included) are: \$7 for one year (six issues); \$14 for two years (12 issues) and \$20 for three years (18 issues).



Cottontails & Corn Fields

By Paul M. Allen

When many hunters ponder what is best for them when it comes to steady hunting and good outdoor recreation, they say rabbit hunting is their choice. And in Florida, this exciting small game animal can be hunted year-round.

A good hunter can easily spot the kinds of habitat rabbits prefer. When I was younger, we called these places "rabbit havens," places having cover that would scarcely be noticed by an ordinary traveler. It seemed like there were many more rabbit havens back in those days.

In recent times, clear farming and urban sprawl have taken their toll on rabbit habitat. Many farmers these days have cleared away cover and replaced it with crop fields and pastures. Rabbits much prefer the older ways—brush piles, fields intersected with broomsedge and old farms that are grown up with vegetation. However, because of successful efforts by game conservation groups, game biologists and a few concerned landowners, rabbit tangles and cover are still around.

Good rabbit cover has a mixture of essentials. Such crops and other vegetation as corn, wheat, millet, soybeans, blackberry bushes and ragweed provide the essentials of food and cover for cottontails. The larger cousin to the cottontail, the swamp rabbit, prefers heavy vegetation around swamps, ponds, lakes and sloughs. Fields bordering timber plots are also favored by rabbits, as are brush piles, gullies and weedy, abandoned garden plots.

Good cover, however, cannot be too thick and overgrown. A few clear areas are needed. Overly thick vegetation crowds out preferred rabbit foods and reduces the amount of drying off space available to rabbits after rains. Clearings within cover areas also give rabbits space to spot predators and hunters.

Hunting rabbits with a beagle or basset hound has always been popular in Florida, but a hunter can flush rabbits from cover without a dog. Walking slowly and stopping often works well, as does occasional stomping

through briar clumps and kicking of brush piles. This often makes a rabbit pop out of the cover and run.

In late season, much cover is reduced, especially in northern Florida where winter frosts occur. During this time, rabbits have a tendency to hold tight to whatever cover is available. Last year, I had two rabbits flush from a little plot of ragweed that was only six feet in front of me. I would have sworn a flea couldn't have hidden in the ragweed without me seeing it, but I was surprised.

Rabbits are naturally camouflaged in their habitat, and this makes them practically invisible to the hunter. If you do not have a dog, the method of alternately walking and stopping to spot them works well. Of course, a group of hunters using this method will jump more rabbits than a lone hunter.

Sometimes, you may run into rough cover that appears to be practically impenetrable, like blackberry briar patches and low-hanging vines. These places are hard to hunt, but can be productive. Wearing gloves, tough pants and leather boots can provide you a measure of protection while traveling through these places.

Some fields are so thick with vegetation that shooting is hampered. When this is so, your strategy needs to concentrate on flushing the rabbits from the dense places to more open spots, if you want to get a shot.

Finding good rabbit hunting close to home is not as easy as it once was, but good quality hunting can be found in some wildlife management areas. (See the Commission's individual regulations and area map brochures, available at county tax collectors' offices and many of their subagent offices for those areas you intend to hunt.) Private lands, some of which have very good mixtures of rabbit food and cover, can provide excellent hunting opportunities, and hunting pressure is often less than on public lands.

Rabbit hunting is a great sport, but never as exciting or productive as when a couple of beagles or basset hounds are working for you. These small dogs can probe deep into cover that is almost impossible for a man on foot to probe.

After a rabbit is flushed, it tends to run in a wide circle and will frequently return to the place from where it was flushed. Swamp rabbits may swim ▷

or run the edges of water, but the direction will usually be in the form of a wide circle and they tend to return to the flushing point. Usually a rabbit will travel just fast enough to stay a safe distance ahead of the dogs. The proper strategy for the hunter, then, is to stay near the flush point and wait for the dogs to bring the rabbit back.

Last year, hunting friend Charlie Foxbower and I headed out one December morning to try for a mess of rabbits. Driving out on a dirt road near Lake City, we went to a farm house, where two bluetick hounds were lolling around outside. When we drove closer, the blueticks only raised their ears, then went back to sleep. We knocked on the door and an old friend, Jim Carter, opened the door and stepped outside.

"Howdy fellas," he drawled. "Come for a rabbit or two, have ya?"

Nodding my head, I asked him, "Where's the best place to turn the beagles loose?"

"See that corn field over yonder?" he asked as he pointed into the distance at a long narrow patch of corn that was bounded on two sides by a jungle of briars and high grass. "That patch o' ground is plumb full of rabbits. Go get 'em and bring me one or two when you're done!"

At the edge of the corn field, Charlie turned the two beagles loose. With a corn field set out in dense cover, it was ready-made rabbit habitat, the kind of place an experienced rabbit hunter would travel far to find. I pushed a short distance into the heavy stuff, and a cottontail darted out before I had a chance to do anything.

I shouted for the two dogs. "Heeere Jack! Heeere Jim!" Immediately, the beagles came barreling towards me.

Without delay, they picked up the scent and gave full chase. That particular bunny was in no big hurry, and didn't travel very far. I caught glimpses of it twice as it dodged and twisted ahead of the dogs, making its way in a circle back to the place I had flushed it from. I collected it as it crossed an open space, heading for the flush site.

"I've got the first one," I yelled to Charlie.

He replied, "Good! Let's do it again."

Charlie scored next. Halfway through a blackberry patch, Jim pushed a rabbit from its hiding place. Somehow, Charlie managed to swing fast enough to make a snap shot and catch the rabbit before it shifted into "high gear."

It had been a long time since I had seen a place as full of rabbits as that corn field thicket was. There were so many that the dogs were baffled at times. Once, Charlie and I jumped two cottontails at the same time Jack was busy on the tracks of a third.

The tracks became mixed up and confusing to the dogs, and they wound up losing all the rabbits, but Jim nosed another cottontail from beneath a deadfall. Jack joined him in a wild, bawling chase through the brush. A small creek divided the thick brush just ahead, and I hurried to a stand close by. I got there too late to intercept the rabbit, but I did see it jump the creek and vanish into the tall grass on the other side. A short time later, the dogs got to the creek but lost the scent.

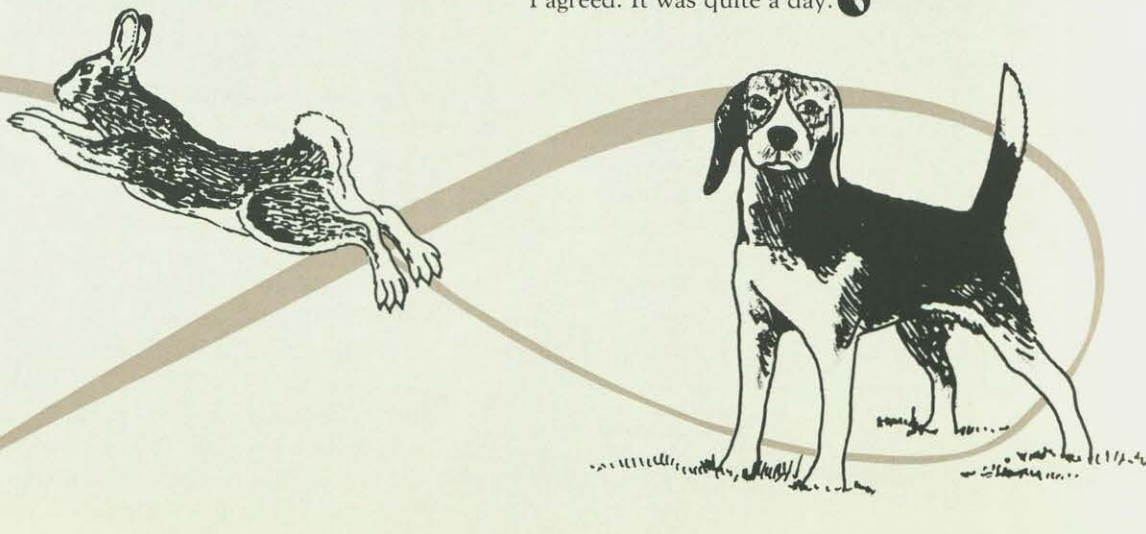
Beyond the thicket was a low, wooded rise. I had a good view of it as the beagles chased another rabbit up one side and down the other. Whenever the dogs would temporarily lose him, the cottontail would stop and watch his backtrack. However, the moment the dogs cut loose again in full cry, the rabbit would dart away. That particular rabbit must have had lots of prior experience being hunted. It "teased" both dogs for half an hour before it finally popped into a gopher tortoise burrow.

For the remainder of the afternoon, the corn field thicket rang with the bawling of two beagles. Now and then, a rabbit would run out of the thick briars and hit the corn field. Then the dogs would really sound off.

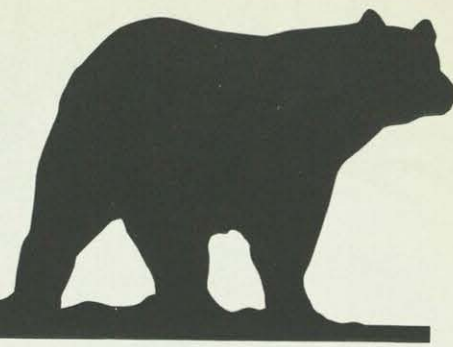
The beagles were still running rabbits when the long shadows of evening began to draw down on the corn field and adjacent thickets. It was almost dark when we finally caught the dogs and stopped hunting.

"Know something?" Charlie asked as we drove back down the lane from the farm and headed south, towards home. "That's the most rabbits I've ever seen on one chase. What a day!"

I agreed. It was quite a day. 🐾



Sign of the Bear



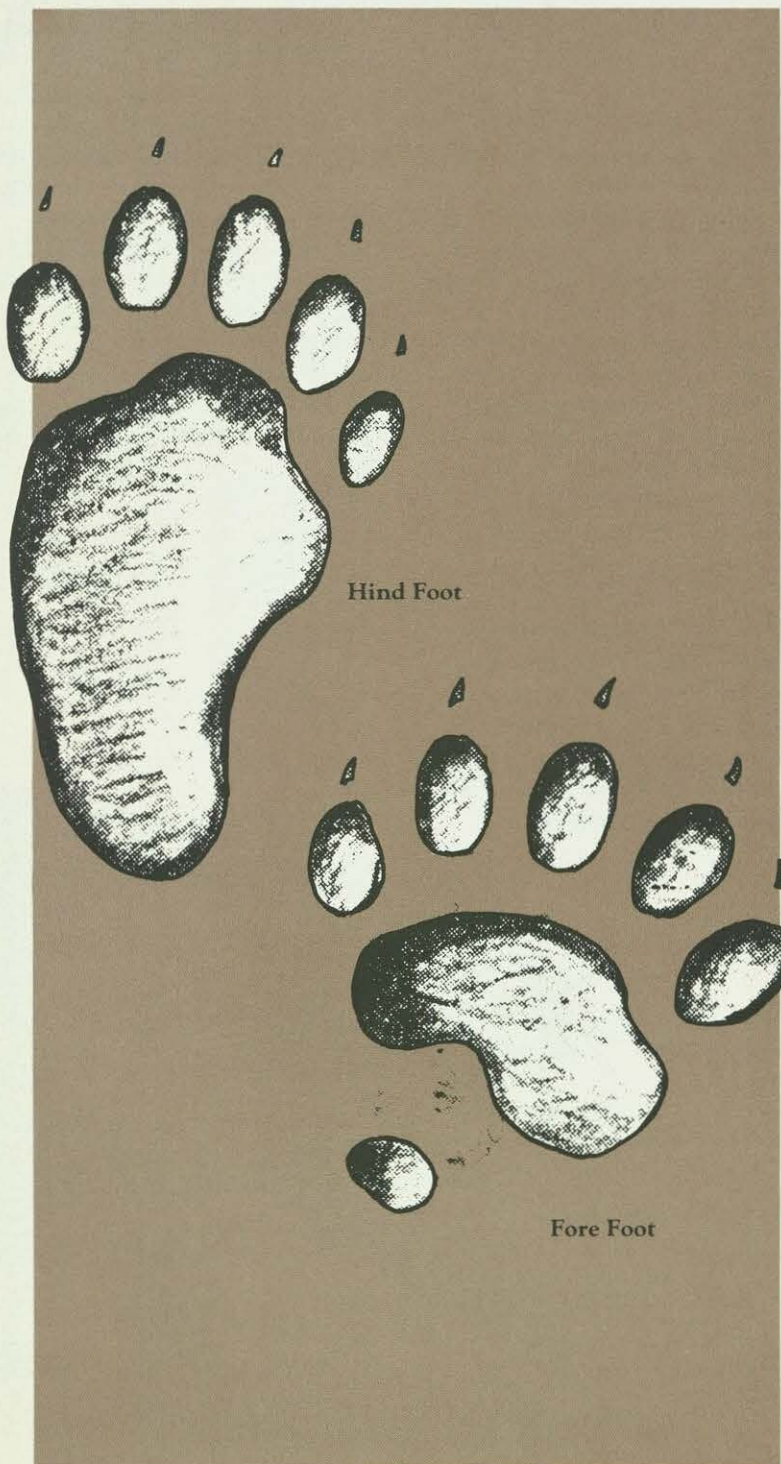
By John Wooding and Tom Hardisky

Black bears live in scattered locations throughout Florida, but because of their secretive nature and the thick vegetation they inhabit, it is rare to see a bear in the wild. The presence of bears is usually indicated by signs, ranging from tracks on a sandy fire lane to a winter bed in a palmetto thicket.

Bear tracks are easily identified by their large size and unique shape. The front feet and toes leave an oval track that is from two to five inches wide by two to five inches long. The rear foot leaves a track similar in size and shape to a human footprint. Rear tracks are two to five inches wide by five to nine inches long. Frequently, however, the heel portion of the rear foot is not visible in bear tracks. Both front and rear feet have five toes. Based on its track size, some information can be learned about the size and sex of a bear. Front or rear tracks that are wider than four inches generally have been made by the larger males. Small tracks, less than three inches wide, probably were made by cubs.

Bear scats (feces) can be identified by their large size and shape. Scats can be found on forest roads, but more frequently, they are found along bear trails in the woods. Scats are up to two inches in diameter and are usually deposited in a large pile. Some scats have an undefined shape, similar to a "cow pie." Close examination of scat will reveal food items that were consumed. ▷

**The black bear is
Florida's largest native
mammal.**





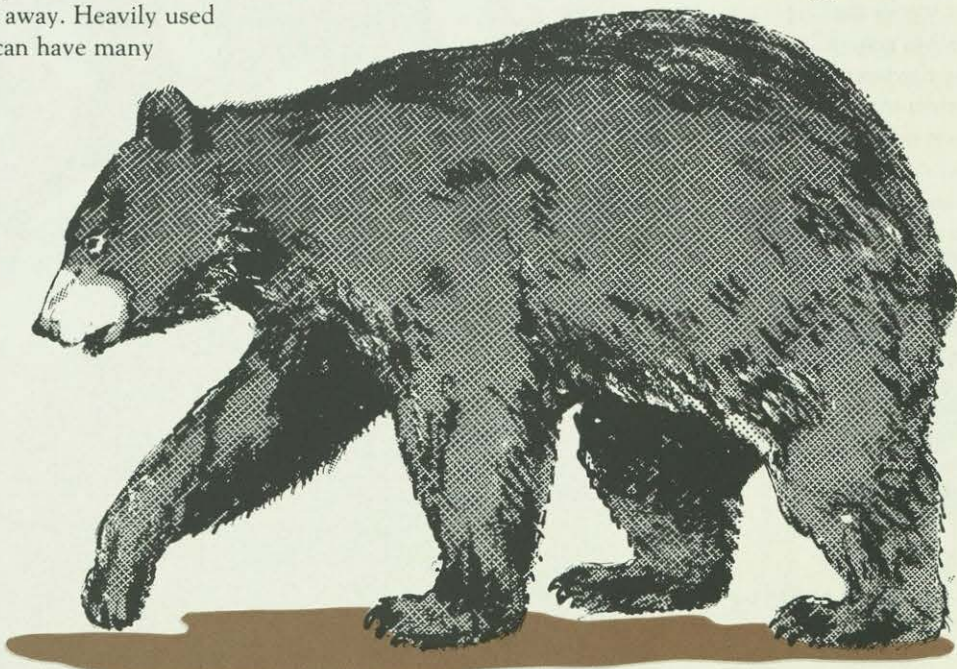
Bears in Florida construct beds or ground nests which are used as resting sites, for giving birth to cubs and for bedding during periods of winter dormancy. Their round or oval-shaped beds typically are made in thickets of palmetto or fetterbush, and there may be a depression in the ground up to a foot deep and two to three feet across. They may be lined with vegetation, commonly saw palmetto leaves. Other beds are made of fallen leaves and pine needles that the bear piles up to lay upon. The bear's weight depresses the center of the pile, making it somewhat resemble a giant bird's nest. Less elaborate beds or resting areas are shallow depressions in the sand or dirt where the ground cover has been scratched away. Heavily used bedding areas can have many different beds.

Bears commonly leave claw and bite marks on trees, telephone poles and wooden sign posts. Typically, marks are made about five feet above ground, although they may ascend the trunk if the bear climbed the tree. Some trees may be intentionally marked to communicate to other bears.

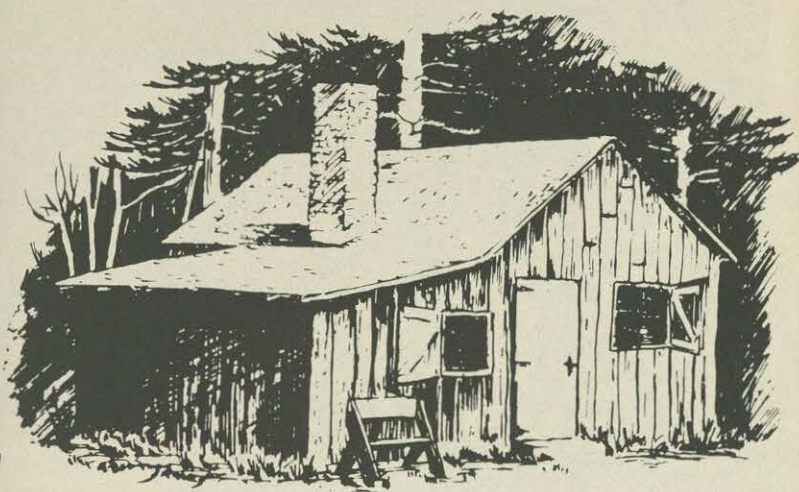
Many plants from which bears obtain food will show scars from their feeding. Bears feed on saw palmetto shoots by pulling off undeveloped leaves and eating the tender basal tips. Usually chewed shoots will be dropped beside flattened plants. Sign that bears have fed on the heart of cabbage palm trees is visible from pushed back

and broken fronds. Other feeding signs include pushed-over blueberry bushes and small scrub oaks. Bears will climb small oak trees and break branches to get acorns. Evidence of bears feeding on insects can be seen where fallen logs have been ripped apart.

Bear signs not only indicate the presence of a bear, but also may reveal many aspects of bear behavior. By piecing together surrounding evidence, an observer can often determine what the bear was doing, what it ate, how large it was, and possibly, whether the bear was male or female. With a little imagination, finding its sign can be just as exciting as seeing Florida's largest native mammal, the black bear. ⑦



Our Night in Aldo Leopold's Shack



A Florida Family Visits Aldo Leopold's Reserve

By Dale Crider

Photographs By Linda Crider

The case for a land ethic would appear hopeless but for the minority who examine land use in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of a living community; it is wrong when it tends to do otherwise.

When I first encountered these ideas, from reading Aldo Leopold's book, *A Sand County Almanac*, I was a college student, taking a course in wildlife management. He had been the first professor of scientific wildlife management, and his books were required reading in the course. To make Leopold's ideas even more interesting to me, one of his former University of Wisconsin graduate students was my professor.

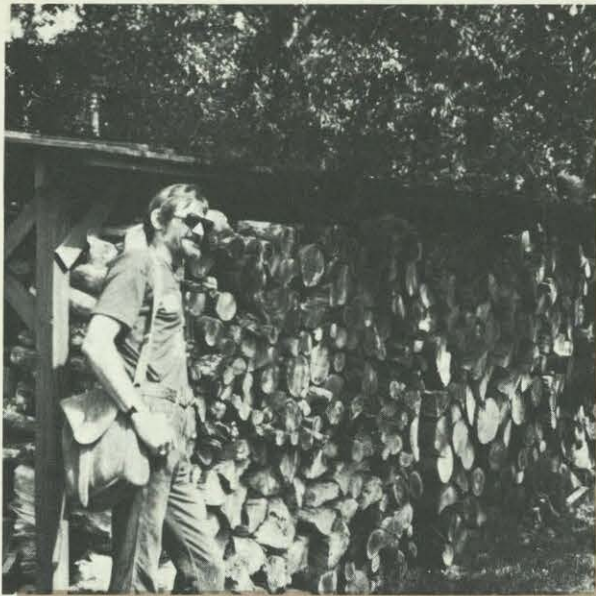
I knew then I had found the real substance of natural resources conservation in Leopold's land ethic. Today, some 30 years after college, Leopold's life has much more value to me because I have land of my own which I try to manage ethically.

Leopold, known as the founder of professional wildlife management, would have been 100 years old this year, and the state of Wisconsin has declared 1987 a year of commemoration for this humble conservation pioneer. To focus on his conservation teachings, the Wisconsin Department of Natural Resources hosted a special conference for Project WILD coordinators, which I was fortunate to attend as a representative for the Commission. ▷



Aldo Leopold Commemorative Year 1987

Aldo Leopold — 1887-1948



He was born in Burlington, Iowa, on the Mississippi River. Like Mark Twain, Leopold grew up along the river and he fished, hunted and explored the land. When he later graduated from Yale University with degrees in forestry, he joined the U.S. Forest Service.

While serving as a forester in Arizona and New Mexico, Leopold began to develop a greater concern for the *health* of the land, including all the living things upon it. "Health" he later stated, "is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity."

Later, in Wisconsin, Leopold, his wife Estella and their five children restored a depleted, neglected farm to its natural state of native plant and wildlife diversity. The land, near Baraboo, has since been designated the Aldo Leopold Memorial Wildlife Reserve.

To better comprehend and understand his concept of a *land ethic* and to experience first-hand being on the land the Leopold family restored, my family and I attended a Project WILD land ethic interpretation and tour at the reserve. The special program was presented by Nina Leopold Bradley and Dr. Charles Bradley. It was especially good to see Nina, Leopold's first daughter, whom I have known for almost 30 years.

Representatives of 40 states, several provinces of Canada and a number of conservation organizations attended the special tour. At sunset, my wife Linda and I were delighted to play music and sing a few of our wildlife songs for the group as they were seated on the prairie bluegrass meadow in front of the Leopold shack, the place where the family stayed while they worked there.

The Leopold family had created the shack from an abandoned chicken house which was there when they first came to the old farm in 1935. Other out buildings and the original farm house had burned down years before they acquired the land.

The shack and surrounding land had been a place where Leopold had conducted many experiments with native plants and animals. While he was teaching natural

resources conservation at the University of Wisconsin in Madison, he would come to the shack to practice his teachings and conduct research on the land. With his family's help, the land had been successfully restored to a healthy state. For 13 years before his death in 1948, Leopold had found peaceful retreat there.

To our left was prairie that had been beautifully restored with native grasses and forbs. Before Leopold acquired the abandoned land, that area had been a corn field. It had been "corned out" as the saying goes in the Midwest. The soil had been depleted of nutrients from too many corn crops. But, Leopold wanted just such a place to restore to its native diversity of wildlife and plants.

As we sang at the shack, beneath a handsome white oak Leopold had planted, we could see plantations of white pines, red pines and assorted hardwoods. They were growing where only barren sand had been when the Leopold family first came there a half-century earlier to create diversity.

Nina explained, "Dad would not allow the pines to be planted in straight lines, as is often the practice. He insisted they be randomly spaced to provide greater aesthetic appeal. The whole family was the labor force," she remembered.

As we viewed the beauty of those trees, decades after they had been planted, we were delighted that such a beautiful idea could come to pass.

Before leaving the refuge to catch our bus back to Madison, Linda and I agreed to return a week later, with our guitar and mandolin, to take part in a land ethic seminar, potluck dinner and singing session. These are held there weekly during summer.

We were also given an invitation to sleep in the Leopold shack, which we naturally accepted with great delight. Nina said we could bring our one-year-old twins and our four-year-old daughter if we were "...prepared to semi-rough it; just as the Leopold clan did here."

I was excited. During the week before we returned, I kept my worn copy of *A Sand County Almanac* close at hand and I worked to write lyrics about Leopold and the land ethic:

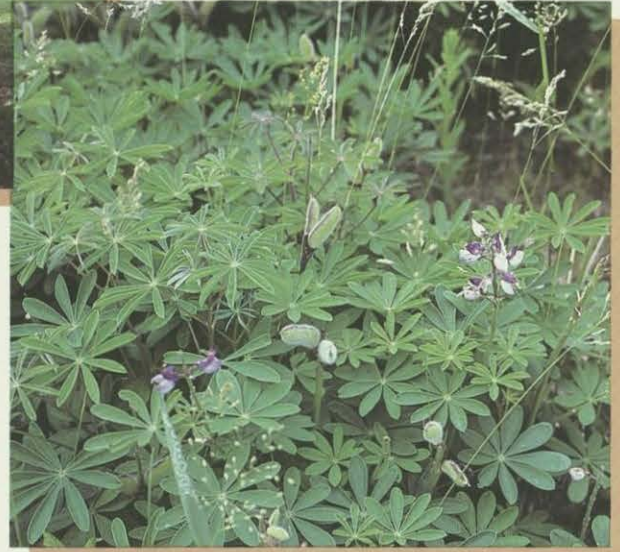
*He saw the green fire dying in her eyes,
that old mother wolf of the mountain;
And from that moment, Leopold would know the
deeper meaning in the game he was countin'.
Leopold was thinking like a mountain.*

The day finally came, and Linda and I arrived at the Leopold shack with twins Simon and Shanica and daughter, Summer. To be sure the little ones did not disrupt the seminar, Linda took the girls down to the Wisconsin River, which runs by the land. I kept Simon at the side of the shack with me, where he was kept occupied by twigs and pine cones.

The group of approximately 60 participants was seated on Leopold benches (a special design which he had built) and river driftwood boards laid across logs. The seminar topic was *Examples of Where the Land Ethic Is Working in the Private Sector*. Following the discussion, ▷



...he was gone before
the pages of history
were turned, and
his land ethic
took root.



Linda and I sang while the group enjoyed a delicious potluck supper. About dusk, the group departed, leaving behind a nice flock of mosquitos to feed on the Crider family.

As the moon was just rising, we decided to lure the flock of mosquitos toward the river. It was a fresh and beautiful night. There was a "June-in-Wisconsin" serenity which I felt certain Leopold had enjoyed when he was there.

Linda and I let the little ones play on the moonlit sand by the river as beams of moonlight were flickering on the river's gentle ripples and its current-inspired tunes, which came floating in like driftwood. What bliss!

By the light of the moon we walked back to the shack, discovering the kinds of moon-shadowed edges and vistas that I was sure inspired pages in Leopold's almanac. We savored the fresh and pure air as it gently blew in from the restored prairie and a feeling of reverence crept into my thoughts as we returned to the shack to put the twins to bed.

In front of a stone fireplace which the father of wildlife conservation had mortared together, wisps of cottonwood smoke drifted into the weathered room. The stones had been left by a glacier many years before he collected and laid them. Nina had explained that the chimney never had drawn adequately to remove all the smoke. She was correct. There was enough smoke inside the shack to chase away the mosquitos—we hoped.

I could not bear the thought that the night would be lost in sleep, so as Mom and babies prepared the shack's homemade beds, I sat writing by the dim light of the fire and an old kerosene lamp.

The springs on the beds were of snow fence attached to driftwood boards that the Leopolds had found along the river. The unique mats over the springs had been made of local straw. Soon everyone but me was fast asleep. Feeling the call of the wild like a "coyote in the night," I quietly put my paper and pen away and stepped out into the night air. It was like a wilderness, although I realized a man had helped design it. That gave me hope.

My guitar had been waiting in the van. It felt good as I swung it over my shoulder and headed towards the wet prairie, where I had seen a pair of sandhill cranes before sunset. Heading along the pines, I remembered these lines I had written the day before, and I sang them while I strummed the guitar:

*"Plant the trees and one day bring the soil back,"
Aldo Leopold wrote in his Sand County Almanac.
"Plant the trees to bring diversity,
to a forest stand on the prairie."*

Leopold knew the subtleties of the native prairie flora, and he witnessed the disappearance of many species as land was plowed up for corn growing. He worried about the decline of sandhill cranes and many other species, but he was gone before the pages of history were turned and his land ethic took root. Leopold, a humble man, would have been somewhat embarrassed by the current attention being directed toward his life and his contributions to conservation, I thought as I played the guitar and walked in the moonlight.

I was proud to be walking on Sand County earth, though I was startled by a deer which had heard my music and snorted loudly in discord. I did not expect to find the sandhill cranes in the moonlight; however, I wondered if they could be the same flock of Wisconsin birds which spends the winter on Paynes Prairie near my home in Alachua County, Florida. ▷

After my moonlight walk and return to my sleeping family, I reflected on the simplicity of the shack and the fact that so much of Leopold's concept of a land ethic had been formed there. I vowed to live my life more in keeping with this ethic, helping the earth heal itself.

I blew out the kerosene lamp and lay down, though I was still wide awake from a cup of coffee I had brewed in Professor Leopold's pot earlier in the evening. But the time awake had provided me the chance to think deeply on the subject of wildlife conservation, about which Leopold so eloquently wrote.

As I was laying quietly in the darkness, pondering a song I had written earlier, a group of bats began flying inside the shack. They fluttered softly through the darkness, at times just inches above our sleeping babies. I could see the children in the faint moonlight which found its way inside the shack, and I could make out the silhouettes of at least four of the little flying mammals.

I must admit, having bats quivering in the air just above our faces initially brought images of "ghosts and Dracula" to my mind, and competed with my thoughts about ecology. Instantly, a chill ran through me. I wondered what to do and if there was any danger to us, but my rational biologist trained mind said, "Of course not!"

Bats are seriously misunderstood by humans and they are the inappropriate subject of many myths and

superstitions which should be blotted out by scientific facts. "What would Aldo Leopold have done about them?" I wondered.

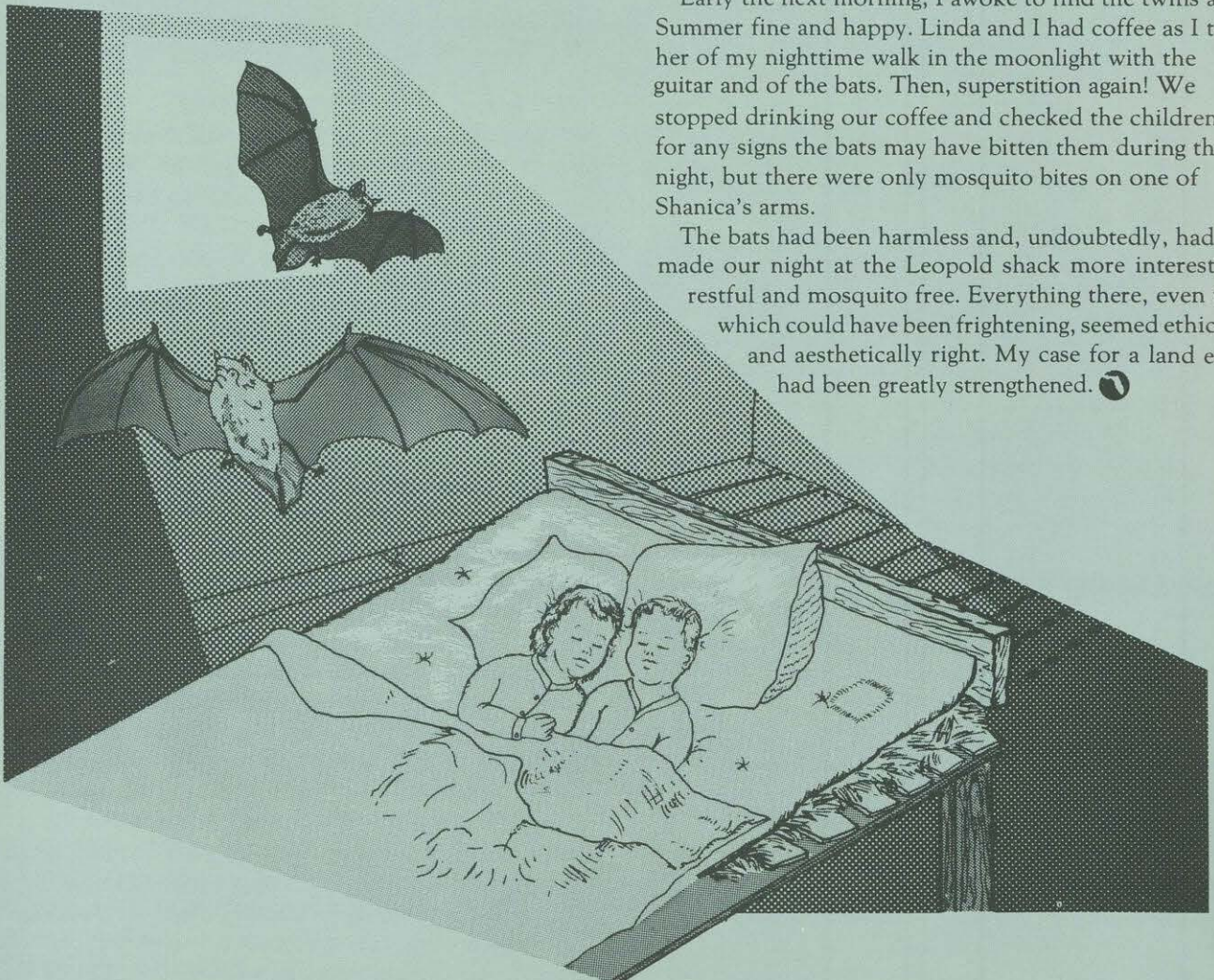
He was probably the first to realize the benefits of predators in managing forests and wildlife. He originated the concept of a land ethic, upon which much of this country's natural resources management is based today. He led the way toward establishing the first wilderness area in North America. With that much experience, I am certain he would have loved the bats and found true meaning in them. They were probably included in his land ethic and management plan.

My college mammalogy professor, Dr. William Elder, formerly one of Leopold's students, had taught us that bats prey on mosquitos. Dr. Elder pointed out that bats are beneficial to have around the house, and that no vampire bats occur in the United States. Nevertheless, bats have been severely harmed by man. Many species of these small harmless creatures have been killed to the brink of extinction through misplaced fear.

As I became assured our little ones would not be harmed by the bats inside the shack, I drifted into sleep. The little mammals continued to flutter in the darkness above my face, creating a cool, quivering breeze, sort of like a ceiling fan. I swatted a couple of mosquitos from my ear as I went to sleep with a land ethic experiment in my mind and a song in my heart.

Early the next morning, I awoke to find the twins and Summer fine and happy. Linda and I had coffee as I told her of my nighttime walk in the moonlight with the guitar and of the bats. Then, superstition again! We stopped drinking our coffee and checked the children for any signs the bats may have bitten them during the night, but there were only mosquito bites on one of Shanica's arms.

The bats had been harmless and, undoubtedly, had made our night at the Leopold shack more interesting, restful and mosquito free. Everything there, even that which could have been frightening, seemed ethically and aesthetically right. My case for a land ethic had been greatly strengthened. ⑦



Angling After Hours

Summer Nights Sizzle
with Bass Action.

By Bob McNally

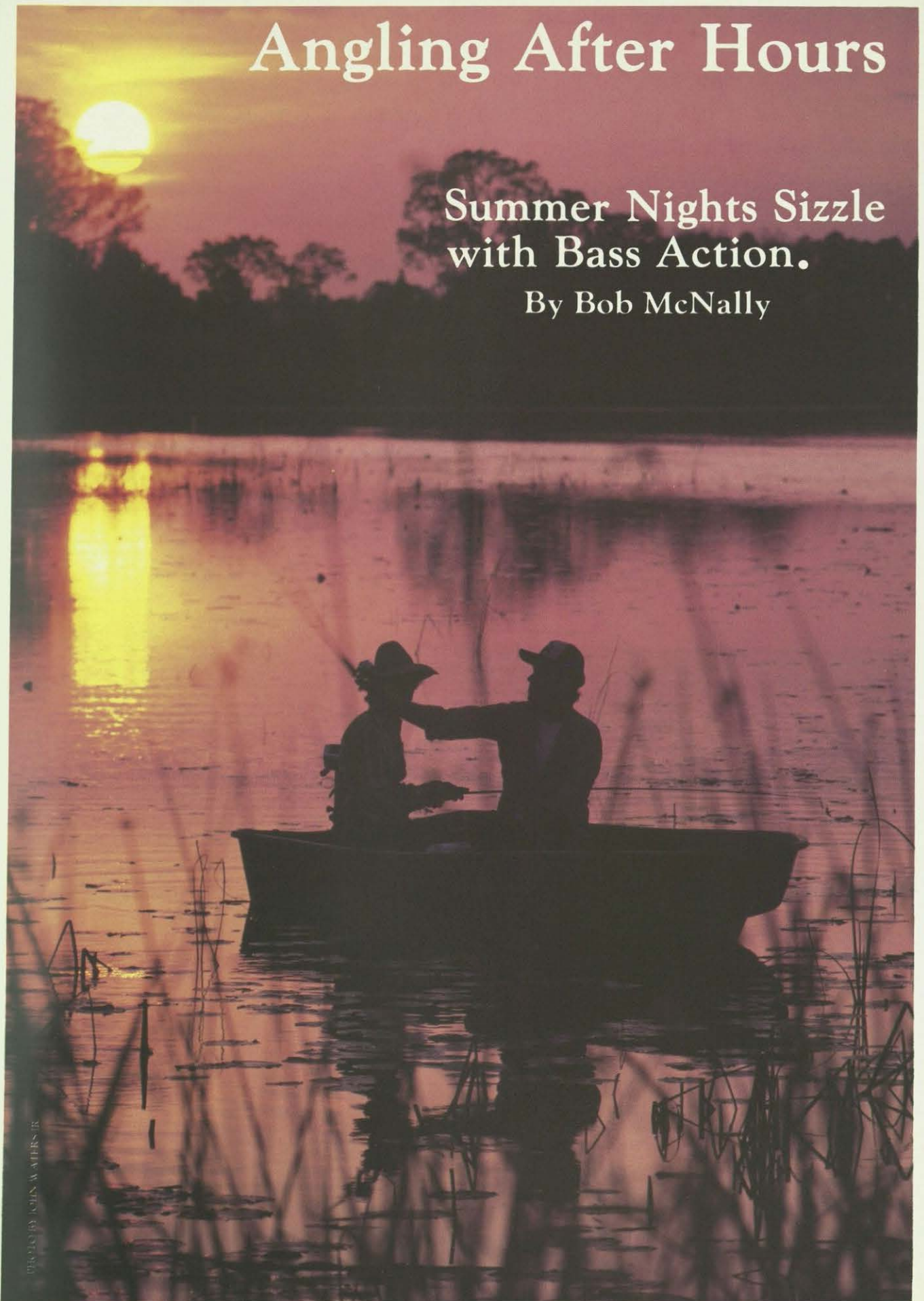


PHOTO BY JOHN WATERS JR.



Hot, muggy, sizzling summer weather makes for uncomfortable midday fishing anywhere in America. But in Florida, daylight fishing can be downright hazardous to your health.

Bass anglers especially have it tough. Anyone who hasn't cast plugs all day on an inland lake or river, far from the cooling breezes of the coast, has no idea what the *dog days of summer* are really about. Staying cool is one of the major reasons many Florida bass anglers fish at night. Another reason is that frequently the largemouth action is better.

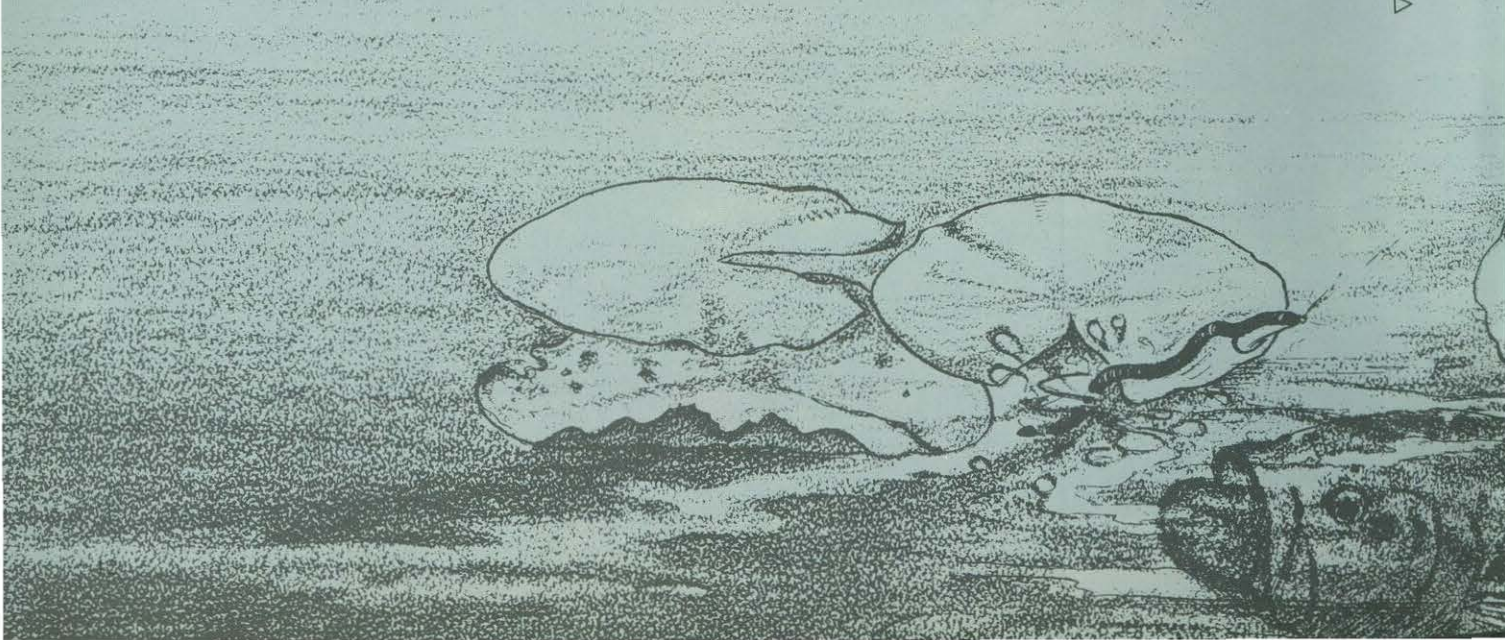
While all bass lakes and rivers occasionally can give up heavy stringers of largemouths at night, a number of Sunshine State waters have well-known reputations for being prime "night spots." As a general rule, most of the best night lakes are ones that are clear or have a lot of daytime boat traffic.

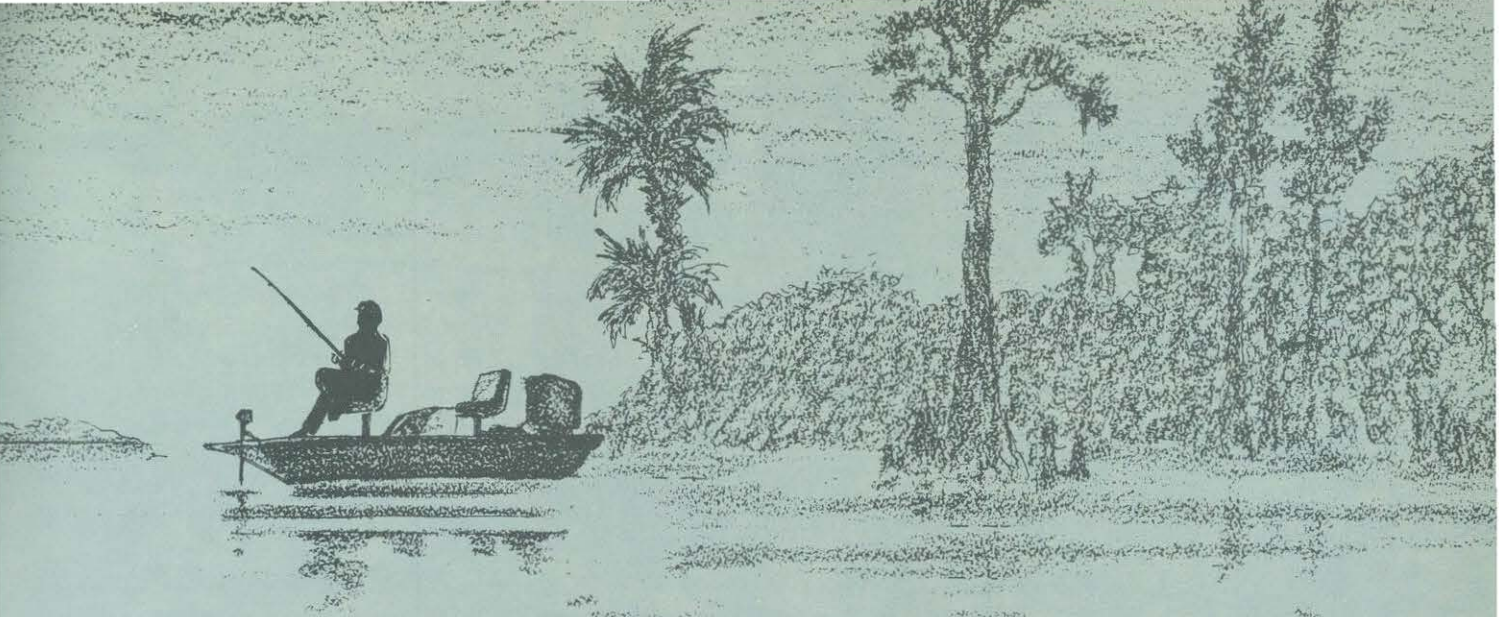
Clear waters have such deep penetrating sunlight that bass generally are not on the prowl unless the sun is low on the horizon. It's important to remember that since bass don't have eyelids, they are extremely light-sensitive. So the only way for them to escape the sun's burning rays is to stay deep or hide themselves in vegetation. But when the sun sets, they migrate to the shallows to forage.

Waters with heavy, daytime boat traffic also shine as night fishing spots, but for a different reason. A steady stream of boats and water-skiers will scare away bass in quick order, even in dark, tannin-stained lakes and rivers. Such lakes may offer good midday fishing in late fall, winter and early spring when boat traffic is comparatively nil; but when the summer boating brigades swarm, bass action is best under the cover of darkness.

One of the best and most fertile night lakes in Florida is Rodman Reservoir, located south of the town of Interlachen. Rodman can be crystal-clear, it's deep and it's jammed with hydrilla and flooded timber. All of that makes for difficult fishing, and night angling on the big lake can be dangerous unless it's done with great care. Live shiners probably account for 80 percent of Rodman's big bass, but at night, heavyweight fish readily take top water plugs, slowly fished buzz-baits and plastic worms. The stump flats near the dam and along the barge canal are prime after-hours bass water.

Although not particularly clear, nor having excessive boat traffic, Santa Fe Lake, near the towns of Waldo and Melrose, is an outstanding night bass lake, with a good reputation among local anglers for giving up heavyweight largemouths when the summer sun





sets. Lots of bigmouths in the 10-pound class are taken from Santa Fe every year, and a good number are caught at night. The west side of the lake is a well known spring bass bedding area, but it also produces good catches of bigmouths at night. A sand bar surrounds much of the lake in about eight feet of water. The shore side drops to about 12 feet and the open-lake side falls off to 30 feet. Many of the biggest bass are caught near the sand bar and plastic worms score well.

Lake Jackson, at Tallahassee, is another outstanding night bass lake. Jackson was drawn down and reflooded recently, but the lake is up high enough now to fish effectively, and summer night bass action is excellent. A number of bigmouths in the 8- to 10-pound range are caught every summer on plastic worms and buzz-baits. One recent summer, Billy Clark, a visiting angler from Alabama, boated a 13-pound Jackson

bigmouth at 3 a.m. on a plastic worm. Many of Jackson's biggest fish are being taken from around midlake hydrilla beds and in the Brill Point and Church Cove areas.

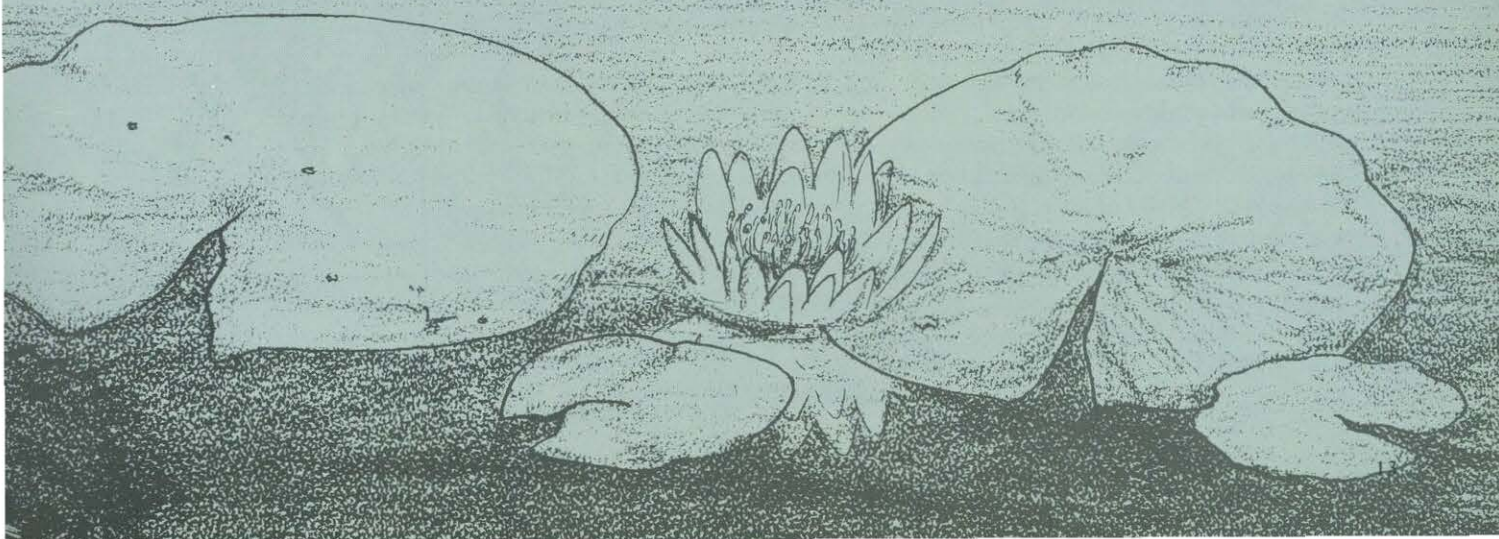
Southeast of Ocala is another outstanding night bass spot, 5,600-acre Lake Weir. It's heavily boated during summer, but it's deep, has abundant shoreline weedbeds and harbors big numbers of pot-bellied largemouths. The lake record is 16 pounds, 1 ounce, but lots of 10-pound-class fish are caught annually. Weir has excellent bottom structures, with long sand bar points tapering to 30 feet of water. But the bulk of the bass caught at night are taken around shoreline peppergrass beds. Deep holes in or near the grass are prime nighttime bass spots. The buoy-marked fish attractors put out by the Commission also yield good numbers of bass.

Koon Lake, near the north-central Florida town of Mayo, is a small

There are hundreds of waters throughout Florida that have top-notch night bass fishing.

125-acre lake few bass anglers would give a passing glance to because it's jammed to its banks with milfoil. But state fisheries biologists report local anglers take lots of heavyweight largemouths from the lake with surface plugs and buzz-baits. Apparently, bass cruise the lake's open pockets and are quickly attracted by surface lure sounds. Largemouths in the 8- to 10-pound class are landed by night fishermen every summer.

Most Florida anglers know that Orange Lake, southeast of Gainesville, is an outstanding largemouth spot. They also know in summer the lake can have hydrilla▷





annually give up bigmouths of more than 12 pounds. The runs also can be tops for striped bass and night bream fishing.

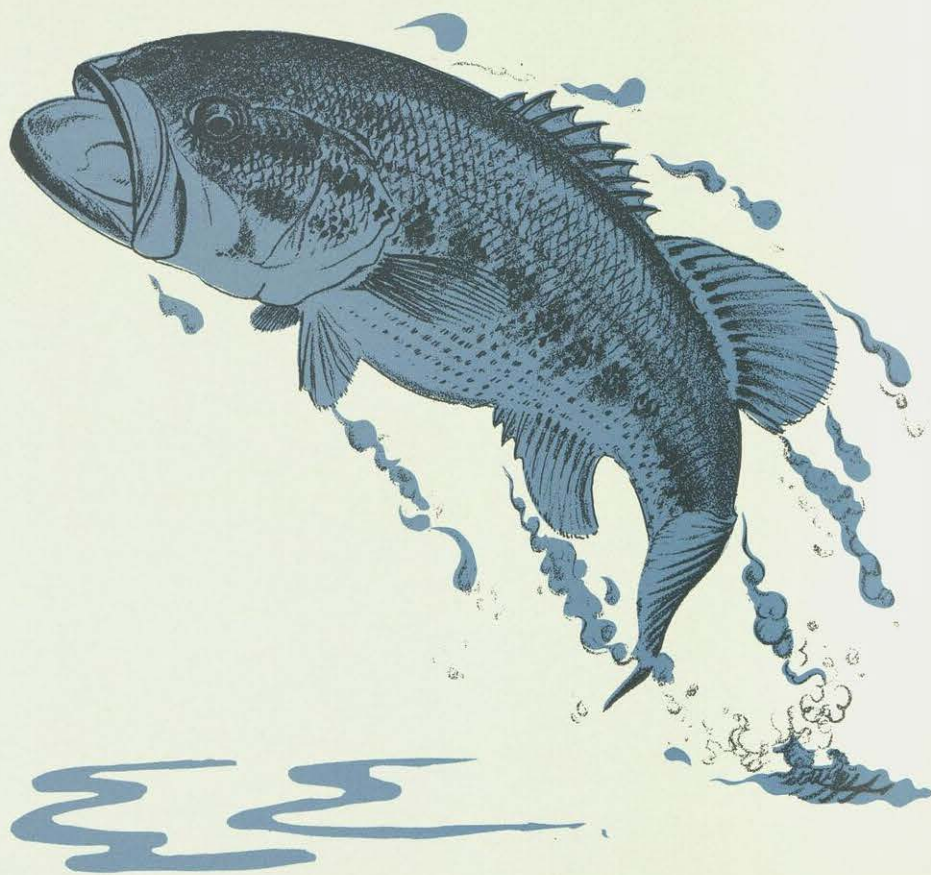
There are hundreds of other waters scattered throughout Florida that can have top-notch night bass fishing. Some of them include: Ocean Pond and Palestine Lake, near the north Florida town of Olustee; Kingsley, Magnolia and Lowry lakes in Clay County's Camp Blanding; and many small (some even unnamed) waters around the towns of Live Oak, Melrose, Keystone Heights and Leesburg. Many of the clear rivers along the state's West Coast also can yield limit catches of bass at night.

Almost any Florida waterway that's clear, or is heavily-boated, and has a good bass population, will give up more and bigger summer largemouths at night. If your favorite bass spot has turned off during the summer dog days, try working it at night. You may never fish it again after the rooster crows. 

problems. That matters little, however, because Orange's clear waters still offer some of the best, most consistent, summer night largemouth action of any lake in Florida. Lots of bigmouths in the 5- to 10-pound range are taken each summer. Prime Orange Lake bass spots include the mouth of Cross Creek; the north end around the islands; Grassy Point (located about a mile north of Cross Creek); the east shore; around McCormack and McIntosh islands; and at the south end near P.G. Run.

Clear, man-made Deer Point Lake, near Panama City, is also well-known for giving up lots of huge bass. But many of the biggest fish caught from this 5,800-acre reservoir are boated at night, during summer. Over the years, Deer Point has yielded hundreds of largemouths in the 10-pound range, including several 14-pounders during the last few years. The lake is clogged with vegetation and flooded timber, so maneuvering boats around it and horsing big fish from it at night are not simple tasks. Many of the biggest summertime bass caught at night are taken on plastic worms and crank baits worked along the deeper edges of the lake's main channel, which drops to 15 feet in places.

The spring runs feeding the west shore of Lake George, near the town of Salt Springs, are well-known night bass hot spots. Salt Springs, Silver Glen Springs and Juniper Springs runs are crystal clear and



Florida's Wild Turkey HERITAGE

By Neal Eichholz

Photographs By Lovett E. Williams Jr.



The Florida wild turkey (*Meleagris gallopavo osceola*) is one of five varieties of North American wild turkeys, and Florida is the only state that has this subspecies. The Florida bird is often referred to by wildlife professionals and turkey hunting buffs as the "Osceola" or "Florida turkey." Its scientific subspecific name, *osceola*, was taken from the famous Seminole Indian leader Osceola.

The Osceola turkey intergrades with another subspecies known as the "eastern turkey" (*M. g. silvestris*), which occurs in northern Florida and adjoining states. There are a few physical differences between the two varieties, but they are not readily observed by the layman. Individual birds may be indistinguishable as to the variety. ▽



Wild turkeys occurred in most of Florida's forested habitat prior to the White man's arrival in North America and during times of early European settlement here. By the turn of the 19th Century, wild turkey populations had been eliminated or greatly reduced in much of the United States, primarily because of overhunting and habitat loss.

Florida was unique in that its inaccessible swamps, inhospitable insects and relatively infertile soils did not attract early colonization. The resulting absence of widespread agriculture and the abundance of forested swamplands provided natural habitat and refuges for Florida's turkey populations.

By the late 1940s, the statewide turkey population was estimated to be 26,000, with one-fourth of the counties having few or no turkeys. In 1948, the Commission initiated a habitat and population survey that was the forerunner of a successful turkey restoration program. Restocking was aimed at re-establishing populations on private lands and wildlife management areas where good habitat was thought to be unoccupied. By the late 1960s, more than 5,000 wild-trapped birds had been translocated into suitable habitats.

Florida was one of the first states to complete a turkey restoration program. Turkey populations increased to around 75,000 by 1961 and to more than 80,000 by 1964. Harvest estimates varied from 20,000 to 32,000 birds annually until around 1970 when they declined to about 12,000 to 14,000. Harvest figures

have remained steady throughout the 1970s and 1980s. Today, Florida's turkey population is estimated at 85,000 birds.

Although turkeys were not abundant during the early 1900s, Floridians enjoyed the luxury of being able to turkey hunt at a time when other regions of the United States had few or no turkeys to hunt. Hunting during those early days was generally a cool-weather activity and was done in the fall when turkey numbers were at a peak. This practice was the forerunner of Florida's traditional fall turkey hunting season.

The early tradition and social acceptance of killing large numbers of turkeys closely followed the days of market hunting and living off the land—when turkeys were valued as a commercial item and for subsistence. The emphasis on how many birds were bagged carried over for many years. Because of these deep traditions and a luxury of long-standing hunting opportunity, Florida turkey hunters are probably some of the most efficient in the world.

Florida's first legal turkey hunting season was held in 1946 and it coincided with the hunting season for deer, quail, squirrel and other native game. Both hens and gobblers were legal that first year and either sex was prized by sport hunters and backwoodsmen alike. During the following years, seasons varied—with only gobblers being legal some years, but both sexes being legal in others.

Turkey seasons and sex regulations often varied from region to region within the state. Not much was known ▷



... free-ranging wild hogs and armadillos were not serious nest predators.

about the life processes of the turkey, and consequently, initial season dates and bag limits were based on a variety of information, and in some cases on misinformation.

The first spring gobbler hunting season was in 1956 in northwest Florida and was one week long. Later, other parts of the state were gradually opened to spring seasons and the season length was extended. Spring hunting gained in popularity because it has more excitement and generally requires less effort than the more traditional fall/winter hunting. The National Wild Turkey Federation was established in 1973 and further popularized spring turkey hunting.

During the period 1968 to 1982, Florida had one of the most ambitious wild turkey research programs in the nation. At least 38 technical publications on wild turkeys were produced by the Commission's Bureau of Wildlife Research. Under the leadership of Lovett E. Williams Jr., Florida pioneered many aspects of research into the life history of wild turkeys.

The first large-scale radiotelemetry turkey study was initiated by the Commission in 1966. This and subsequent follow-up studies revealed for the first time that both adult and subadult hens nested successfully and that they would often renest following disturbance. Renesting was most likely when the nest disturbance occurred during the egg-laying period, but hens were less prone to renest if disrupted during the time of continuous incubating behavior. Turkey hens studied in Florida tended to nest in a variety of habitats, but most chose low vegetation having dense cover above and near the nest.

Those studies determined that eggs were laid in nests which typically consisted of a shallow depression scratched in the soil. Apparently no nest material was carried to the nest, although hens covered eggs with leaves and other plant material before leaving the nest during egg laying. The eggs were left uncovered, however, when the hen left the nest during the incubation period.



Studies also determined that the clutch size for Florida turkeys averaged about 10 eggs per clutch with adult hens laying an average of 10.5 eggs, and yearlings 10. Second nests contained as many eggs as the first when renesting occurred. Wild turkeys in Florida require about 12 days to lay their clutch, around 26 days of incubating by the hen and almost two days of nest attendance during hatching. The nesting season spans about 39 days, beginning around mid-March and continuing through May.

Once hens begin to set on the nest continuously, they stay day and night, leaving for a quick stroll and to feed only every two days (on the average), remaining off the nest only about two hours. Most of these recesses from incubation are taken in mid-morning and late afternoon, not around noon as was widely believed before the studies.

The major time of turkey hatching in Florida is May, with relatively little difference between north and south Florida. Nesting is completed during June, and July nests are uncommon.

Other research showed overall nesting success was 58 percent when factors such as predation, disturbance and renesting were considered. Predators known to be responsible for nest losses include raccoons, striped and spotted skunks, opossums, gray foxes, bobcats and domestic dogs. Studies showed that, contrary to popular belief, free-ranging wild hogs and armadillos were not serious nest predators, although a few hens abandoned their nests after armadillos rooted through them. Nest losses to predators were found to be 55 percent and poult losses during the first two weeks averaged 70 percent.

The annual population turnover rate was determined to be around 30 to 40 percent. Predation has always ▸

been a factor in the evolution of the turkey, but studied populations increased in spite of predators. It is undoubtedly predation that created the wariness we so admire in the turkey.

It was found that hens did not prefer low-lying areas for nesting. This behavior prevented serious nest losses when heavy rains filled dry ponds and sloughs.

Turkey hens generally roost each night more than a quarter-mile from their nests during the egg-laying period. Eggs are laid around midday and, while on the nest, hens are difficult to disturb. Humans can approach within 10 yards of a nest without flushing the hen. This suggests spring gobbler hunting is probably not a significant cause of wild turkey nest disruption in Florida.

Another Florida turkey research project resulted in the development and refinement of procedures for using a tranquilizer to capture turkeys. The Commission was also one of the first to describe methods for trapping turkeys with a cannon net.

Other research determined more about the wild turkey's physical characteristics, reproductive behavior, seasonal movements and hunting harvest patterns. Those studies have helped pave the way for other states in their efforts to unravel the mysteries of the wild turkey. Findings described here are only a partial summary of the research. The full story will be available soon in a technical bulletin entitled "*Studies of the Wild Turkey in Florida*," by Williams, Austin and Peoples.

A sudden statewide drop in turkey numbers in the mid-1960s is alleged to have been the result of a widespread disease; however, the harvest drop from the 1970s through the present has much greater implications. During this time, Florida's human population increased at an unprecedented rate, which resulted in the loss of large acreages of turkey habitat to urbanization and related development throughout the state.

Florida's climate is also favorable for pine tree and row crop production. Land management practices such as conversion of hardwood forests to pine silviculture and agricultural crops have contributed to substantial loss and degradation of turkey habitat. Reduced habitat and increased pressure by an expanding human population and changing land-use patterns have adversely impacted turkey populations and caused turkey hunters and wildlife professionals to be concerned about the future of the wild turkey in Florida. As human population increases and habitats continue to decline, additional recreational pressures have been placed on existing resources. All these events suggest a dubious future for the turkey.

Turkey hunters and other conservationists recognized the plight of the turkey in Florida, and through the leadership of the Florida Chapter of the National Wild Turkey Federation, action was taken to create a tax to help the turkey. The idea of a turkey stamp was proposed by the Florida Chapter in the early 1980s, and in 1985, the Florida Legislature passed the Florida Wild Turkey Stamp Act (Chapter 372.5715, *Florida Statutes*),



which became effective June 1, 1986. It requires the purchase of a \$5 *Florida Turkey Stamp* to hunt or attempt to hunt turkeys in Florida.

Stamp sales are expected to generate money for better management of the turkey in Florida. Provisions within the turkey stamp law require that the Commission conduct research into the incidence of declining turkey populations and management needs for wild turkey populations in northwest Florida. Additional revenues are to be expended for research and management statewide, except that a maximum of five percent of gross revenues may be used for administrative costs. In order to facilitate development of a more comprehensive turkey program, a position has been established within the Commission with the purpose of coordinating such a program.

Florida is still gaining human population and losing wildlife habitat, but our state has one of the most progressive land purchase programs in the nation. Thousands of acres of forestland are being protected by state land acquisition, and some of these lands will be included in the Commission's Wildlife Management Area System. Many of these lands have good turkey habitat and are potentially valuable turkey management areas. In addition, many existing wildlife management areas are being evaluated to improve the quality of turkey habitat and hunting.

Several wildlife management areas that opened for turkey hunts during the 1987 spring season have shown promising results. These hunts were carefully regulated by controlling the number of hunters and the harvest to ensure a quality hunting experience while maintaining high turkey numbers. The idea is to manage the turkey resource for sport hunting and for the enjoyment of all users.

This management concept has been effective on private land, but has generally been unsuccessful on public land due to the difficulties involved in providing and managing multipurpose uses. But, with continued careful planning and implementation of proper management practices, the Florida wild turkey can continue to be around for everyone to enjoy. ●

PHOTO BY LYNN M. STONE



Delicate Balance

Species: Eastern Indigo Snake (*Drymarchon corais couperi*)

Florida and Federal Status: Threatened

With a maximum size in excess of 8-½ feet, the eastern indigo snake is the longest snake native to the United States. Because of its large size and docile disposition, the indigo was formerly in great demand in the pet trade, and some local populations were severely overcollected. It was designated a protected species in Florida in 1971, and subsequently received federal protection when it was listed by the U.S. Fish and Wildlife Service as a threatened species in 1978.

Since the cessation of large-scale commercial trade, some indigo snake populations have recovered, but the species now faces problems far more difficult to address. Although it occurs northward into southern Georgia, the indigo snake is essentially a tropical/subtropical form, and would be incapable of surviving in Georgia and northern Florida without some means of avoiding the winter cold.

In southern and central Florida, indigo snakes may be encountered in almost any wild habitat, but in Georgia and panhandle Florida, the species is almost always associated with high sandhill habitats. Here, it overwinters in the burrows of gopher tortoises, where winter temperatures seldom drop below 50 degrees F. But because of overexploitation and habitat degradation, gopher tortoise populations have also declined in many areas, and with them have gone the burrows on which the indigo snake depends. Although the indigo snake still occurs throughout most of Florida, it is now rare in most of the panhandle.

Indigo snakes feed on almost any vertebrate small enough to be overpowered, but they prey especially heavily on frogs and snakes, including poisonous snakes.

They are surprisingly far-ranging predators. In one Commission study, small radio transmitters were surgically implanted into several indigo snakes, and the snakes' movements were then monitored over a period of several months. Spring/summer activity ranges of four male snakes averaged 470 acres, and one individual utilized a territory of 1,400 acres.

As habitats become dissected by roads, indigos become increasingly vulnerable to highway mortality as they range over their territories. Even in low-density "ranchette" developments, indigo snakes often fall victim to domestic dogs. It is not surprising, therefore, that the best remaining populations of indigo snakes are associated with areas of extensive undeveloped habitat.

— Paul E. Moler



FLORIDA

1987 - 88

HUNTING SEASONS



RESIDENT GAME

SHOOTING HOURS

One-half hour before sunrise to one-half hour after sunset.
Spring Turkey Season: One-half hour before sunrise to 1 p.m.

SPECIES	NORTHWEST REGION	OTHER REGIONS	LIMITS DAILY SEASON POSSESSION		
Deer*	Nov. 14 - Jan. 24	Nov. 14 - Jan. 10	2		3
Wild Hog**	Nov. 14 - Jan. 24	Nov. 14 - Jan. 10	1		2
Turkey	Nov. 14 - Jan. 10		1	2	2
Turkey Gobbler (Spring Season)	Mar. 19 - Apr. 24		1	2	2
Quail			12		24
Squirrel	Nov. 14 - Mar. 6		12 Gray Squirrel 2 Fox Squirrel	24 Gray Squirrel 4 Fox Squirrel	
Rabbit	Open Year-round		12		24

*Deer of either sex may be taken statewide November 28 & 29. (This does not apply to Type I and Type II wildlife management areas).

**Wild Hogs (where classified as game animals). For information concerning hogs as legal game consult the *Florida Hunting Handbook Regulations Summary* for 1987-88.

Bear may be taken in Baker and Columbia counties during the established open season for taking deer and by special permit on designated wildlife management areas; limit 1 per hunter.

OPEN SEASONS (Unless stated otherwise) **ARCHERY**: October 3 - November 1 and September 5 - October 4 in that portion of Florida south of S.R. 72 to Arcadia and S.R. 70 to Ft. Pierce. **MUZZLELOADING GUN**: November 6-8. **SPECIAL ARCHERY/MUZZLELOADING GUN**: February 6-21 in the Northwest Region only. **GENERAL GUN**: November 14 - January 24 in the Northwest Region only and November 14 - January 10 in the remainder of Florida. **SPRING TURKEY**: March 19 - April 24 statewide. Due to the high use of most wildlife management areas by the public, it has become necessary to impose quotas to limit the number of persons using most of these areas during peak times of the season.

See "Florida Hunting Handbook Regulations Summary for 1987-88" for additional rules, regulations and seasonal information. See "Florida Freshwater Sport Fishing Guide and Regulations Summary 1987-88" for fishing and frogging rules and regulations.



MIGRATORY GAME

SHOOTING HOURS

Shooting hours for migratory game birds (except doves):
one-half hour before sunrise to sunset. Dove hunting from noon to sunset during first phase,
one-half hour before sunrise to sunset during phases 2 and 3.

SPECIES	STATEWIDE	DAILY BAG LIMITS	POSSESSION LIMITS
Marsh Hen	Sept. 1 - Nov. 9		
	King and Clapper Rails	15	30 Singly or in Aggregate
	Sora and Virginia Rails	25	25 Singly or in Aggregate
	Moorhen (Florida Gallinule)	15	30
Special Duck*	Sept. 26 - 30	4	8
Mourning & White-winged Dove	Oct. 3 - Oct. 25 Nov. 14 - Nov. 29 Dec. 12 - Jan. 10	Bag limit is 12 doves daily, 24 in possession (including no more than 4 white-winged doves daily and 8 in possession).	
Snipe	Nov. 1 - Feb. 15	8	16
Woodcock	Dec. 12 - Jan. 25	3	6
Duck* (2 phases)	Nov. 25 - Nov. 29 Dec. 15 - Jan. 18	100 Points*	2 Legal Daily Bag Limits
Coot*	Nov. 25 - Nov. 29 Dec. 15 - Jan. 18	15	30

*See "1987-88 Migratory Game Birds (Ducks and Coots)" and "1987-88 Migratory Game Bird Regulations For Dove, Snipe, Woodcock, Rail, Moorhen, Crow and Early Duck Season" for details.



Sheet Size: 17" Vertical x 25" Horizontal. Image Size: 11½" Vertical x 17" Horizontal. Frame not included. Limited edition of 1,000 signed, numbered prints.

Charles Rowe's "Bobwhites"

Buy 3 Gift Subscriptions and We'll Give You a Print.

The bobwhite quail, a member of the partridge family, is familiar to most Floridians. It's cheerful *bob, bob white* call is one of those sounds of the wild that makes us smile. The brief glimpse of a covey of these small, beautiful, ground-dwelling birds running across a country road is an elegant sight. And none of us, who have been startled by the flutters of a covey flushed in the field, can forget the excitement of their quick flight.

Bobwhites generally pair up and hens begin egg laying in ground nests in early spring. The breeding season may last until early October, depending on success at raising one or more broods of chicks. During midseason, an average clutch of a dozen or so eggs may be laid during a two- to three-week period. Both hens and cocks incubate the eggs.

Chicks are about an inch high when hatched, but grow to adult size in about four months. Natural predators and adverse weather may take as many as half the chicks that hatch.

There are far fewer quail in Florida today than a few short years ago. Even though this popular species often adapts to habitats within small towns such as vacant lots, and to the edges of some metropolitan areas, suitable bobwhite habitat is slowly disappearing here. As with a multitude of other irreplaceable wildlife species, conversion of wildlife habitat to agricultural, forestry and urban uses is the principal cause of the bobwhite's decline. ▽

A Full-Color Art Print of Your Own!

FLORIDA WILDLIFE is pleased to offer you a signed, numbered print of Charles Rowe's "Bobwhites," (shown on the covers of this issue) as a special bonus when you purchase three gift subscriptions. It's our way of thanking you for sharing FLORIDA WILDLIFE with others. We know you will be more than pleased with this very outstanding work of art and that your friends will appreciate your subscription gift to them.

Note: Three Subscriptions Are Required To Receive The Print.

Send Payment To: FLORIDA WILDLIFE
620 South Meridian Street
Tallahassee, FL 32399-1600

Please type or hand print legibly. Enclose minimum payment of \$21 (check or money order, payable to FLORIDA WILDLIFE). Please allow three to four weeks for delivery. Subscriptions will be started as soon as they can be entered into our computer system.

Subscriber

1

Subscriber Name: _____

Address: _____

City: _____ State: _____ ZIP: _____

☐ NEW ☐ RENEWAL

☐ 1 Year (6 issues) \$7.00

☐ 2 Years (12 issues) \$14.00

☐ 3 Years (18 issues) \$20.00

Subscriber

2

Subscriber Name: _____

Address: _____

City: _____ State: _____ ZIP: _____

☐ NEW ☐ RENEWAL

☐ 1 Year (6 issues) \$7.00

☐ 2 Years (12 issues) \$14.00

☐ 3 Years (18 issues) \$20.00

Subscriber

3

Subscriber Name: _____

Address: _____

City: _____ State: _____ ZIP: _____

☐ NEW ☐ RENEWAL

☐ 1 Year (6 issues) \$7.00

☐ 2 Years (12 issues) \$14.00

☐ 3 Years (18 issues) \$20.00

**Send Quail
Print to:**

Buyer's Name: _____

Address: _____

City: _____ State: _____ ZIP: _____

Wildlife I N • A R T

Picking only one work of art for this issue's "wrap-around" cover and this year's FLORIDA WILDLIFE artist print offer was very challenging for the judges. Viewing works by some of Florida's finest wildlife artists, and trying to choose only one, was quite a task.

Although Charles Rowe's watercolor original of a pair of bobwhite quail won the final selection, the other paintings shown here include some very strong contenders for the judges' final choice.

We hope you enjoy seeing this selection of the best submissions as much as we did!

Artist: Jim Dollar (Tallahassee, FL)





Artist: R.P. Elliott (Tallahassee, FL)



Artist: Art Biro
(St. Petersburg, FL)



Artist: Shelley Brunken (Concord, GA)



Artist: Brenda Poff Hill (Winter Haven, FL)

PHOTO BY LYNN M. STONE



Florida's National Wildlife Refuges

*The First National Wildlife
Refuge Was in Florida*

By Raymond DeLeon Powers



It is hereby ordered that Pelican Island in Indian River in section nine, township thirty-one south, range thirty-nine east, State of Florida, be ... set apart for the use of the Department of Agriculture as a preserve and breeding ground for native birds.

With that announcement in spring 1903, President Theodore Roosevelt created the nation's first national wildlife refuge (NWR). An avid hunter and a dedicated conservationist, Roosevelt was deeply concerned about the future of America's natural resources. He was sympathetic when the American Ornithological Union requested his

help in protecting the brown pelicans that nested near the town of Sebastian on Florida's East Coast.

The pelicans were being decimated by fishermen and yachtsmen who viewed the big birds as fish eating pests. Because the pelicans nested on the ground in large colonies, they were easy prey for men with guns and clubs. An entire nesting colony could be literally wiped out in a day. Roosevelt responded to the ornithologists' request by designating the island used by the pelicans a federal refuge. A German immigrant, Paul Kroegal, was hired as a federal game warden

to ensure the safety of the island's feathered inhabitants. Warden Kroegal guarded Pelican Island with unwavering dedication (and with a 10-gauge shotgun), and slowly, the pelican population began to recover.

The tiny refuge was a milestone in the brief history of American conservation. For the first time, the United States government had set aside public lands solely for the benefit of wildlife. To do this in 1903, when much of the country was still undeveloped, was an act of remarkable vision by President Roosevelt. On Pelican Island, he had sown the seed that would eventually become the world's greatest wildlife refuge system.

At the turn of the century, Florida was a logical place to begin such a refuge system. Thinly populated and mostly wilderness, the peninsula contained a wealth of wildlife. Nowhere was this wealth more evident than in the millions of birds living along the state's coasts and waterways. The incredible abundance of these birds led many people to see them as an inexhaustible supply of food and feathers. Even as the pelicans of Sebastian were gaining federal protection, plume hunters were destroying vast numbers of wading birds. *Aigrettes*, the beautiful gossamer breeding plumes of egrets and herons, were in great demand as stylish accents for women's hats.

At one point the price of aigrettes reached \$32 per ounce. Such a price, when an ounce of gold sold for about \$20, encouraged wholesale slaughter of plume-bearing birds in south Florida's colonial nesting sites. For example, in one year more than 100,000 bird skins were shipped away from Florida by a single merchant! In another case, an ornithologist reported that while walking the streets of New York City he counted more than 500 women's hats which had been fashionably decorated with the remains of 40 bird species.

In addition to brown pelicans, egrets, herons and spoonbills also were shot on their large colonial nesting sites. Since the eggs and young had no commercial value, they were left ▷

A visit to a national wildlife refuge can provide hours of enjoyment.

PHOTO BY LYNN M. STONE



Roseate spoonbills.

to rot. After stories of the slaughter were published, public sentiment slowly turned against the use of plumage in fashions. After two Audubon Society wardens were murdered by plume hunters, the resulting public outcry stimulated the passage of new laws and the collapse of the plume market.

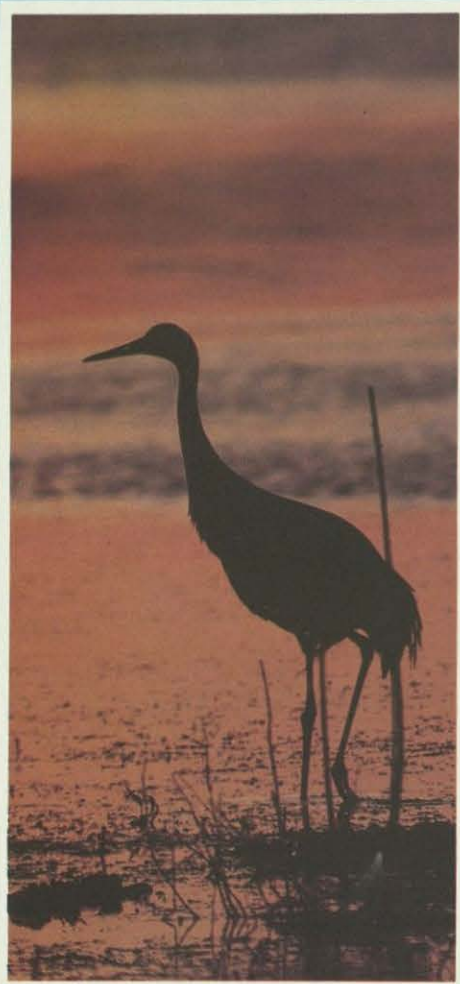
In 1908 the federal government stepped in to aid Florida's ravaged wading bird population by creating Key West NWR, a 25-mile string of protected islands. Two decades and one world war later, Cedar Keys NWR was set aside (in the summer of 1929), primarily as a breeding ground for colonial nesting birds such as egrets and herons. The collapse of the plume market and the creation of new refuges came not a moment too soon. In the 1930s, Florida's great white heron population was estimated at only 146 birds.

Though the National Wildlife Refuge System began with an attempt to protect pelicans, its first largescale growth came in an effort to restore the North American waterfowl population. Years of unrestrained market shooting, marsh drainage and drought had devastated America's once uncountable flocks of ducks and geese.

By the 1930s, Franklin Delano Roosevelt was in the White House. His wildlife experts advised that the recovery of American waterfowl would require restoring the drained marshes and creating refuges along the major migratory routes. Roosevelt took their advice, and by 1934, two million acres across the country had been purchased for waterfowl conservation.

The year 1934 also saw the first federal "Duck Stamp" program. It required all waterfowl hunters more than 16 years of age to purchase a federal Duck Stamp. Funds from sales of these stamps would be used to acquire new refuge habitats. With growing public support and increased funding, refuge creation accelerated. Saint Marks NWR, one of Florida's largest refuges, was created during this time.

In the 30-year period between 1938 and 1968, eight major national wildlife refuges were created in Florida. Among these are Great White Heron NWR (1938), Chassahowitzka NWR (1943), Sanibel [later named J.N. "Ding" Darling NWR after the creator of the federal Duck Stamp program] (1945), Loxahatchee NWR (1951), Merritt Island NWR (1963), Lake Woodruff NWR (1964) and Saint Vincent NWR (1968). ▽



Sandhill crane.

By 1934, two million acres across the country had been purchased

PHOTO BY LYNN M. STONE



J.N. "Ding" Darling National Wildlife Refuge.

There are several smaller refuges, including Key Deer NWR on Big Pine Key and Saint Johns NWR near Titusville. Each was set aside primarily for the benefit of a particular species. Key Deer NWR was established to protect the diminutive key deer, while Saint Johns NWR was set up to provide critical habitat for the dusky seaside sparrow. The dusky, unfortunately, has probably become extinct because of habitat loss. [Editor's Note: A last effort to locate any remaining dusky seaside sparrows in their former range is being made as this issue goes to press.]

Another small, but extremely important refuge is Hobe Sound NWR near the town of Jupiter. Though less than 1,000 acres, this tiny refuge's beaches comprise the

I had to wonder *what if...*

second densest sea turtle nesting area in the United States. As many as 100,000 juvenile turtles hatch there every year.

Happily, the process of refuge creation has not ended. As this was written, two relatively new Florida refuges, Lower Suwanee NWR on the Gulf Coast and Crocodile Lake NWR in the Keys, are undergoing active land acquisition. They join a system of more than 400 national wildlife refuges stretching from the

Caribbean Sea to the Arctic Circle and encompass more than 90 million acres. Florida alone has 25 national wildlife refuges totaling approximately 473,000 acres. These are part of a national system managed by the U. S. Fish and Wildlife Service.

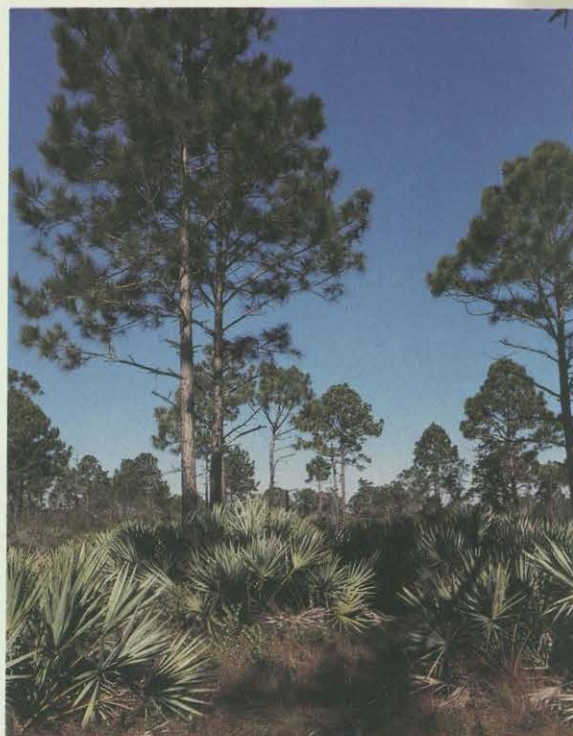
A visit to a national wildlife refuge can provide hours of enjoyment. Although many offer managed hunts, fishing, boating and hiking, by law, the welfare of wildlife is of primary importance. As a result, development for human convenience is generally kept minimal.

Some refuges offer interpretive programs, exhibits and even wildlife sightseeing drives where species can be observed safari-style from the comfort of your car. ▷



Habitat is an important part of the refuge system.

I stopped at a post office and bought another Duck Stamp.

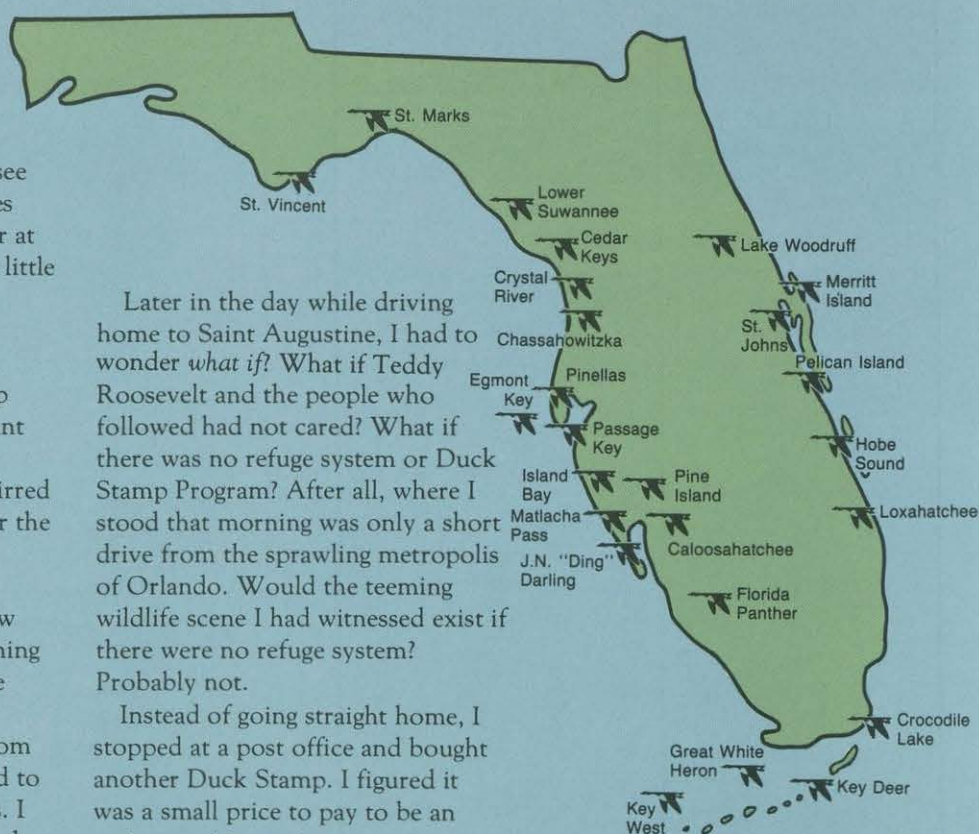


It only takes a single visit to see just how important these refuges are. I had such a visit last winter at Lake Woodruff NWR near the little town of DeLeon Springs. I had watched the sunrise from my vantage point on the edge of an impoundment dike. As the deep purple sky faded into the brilliant clear blue of a winter morning, thousands of teal and scaup whirled overhead. They seemed to cover the water surface with their bodies.

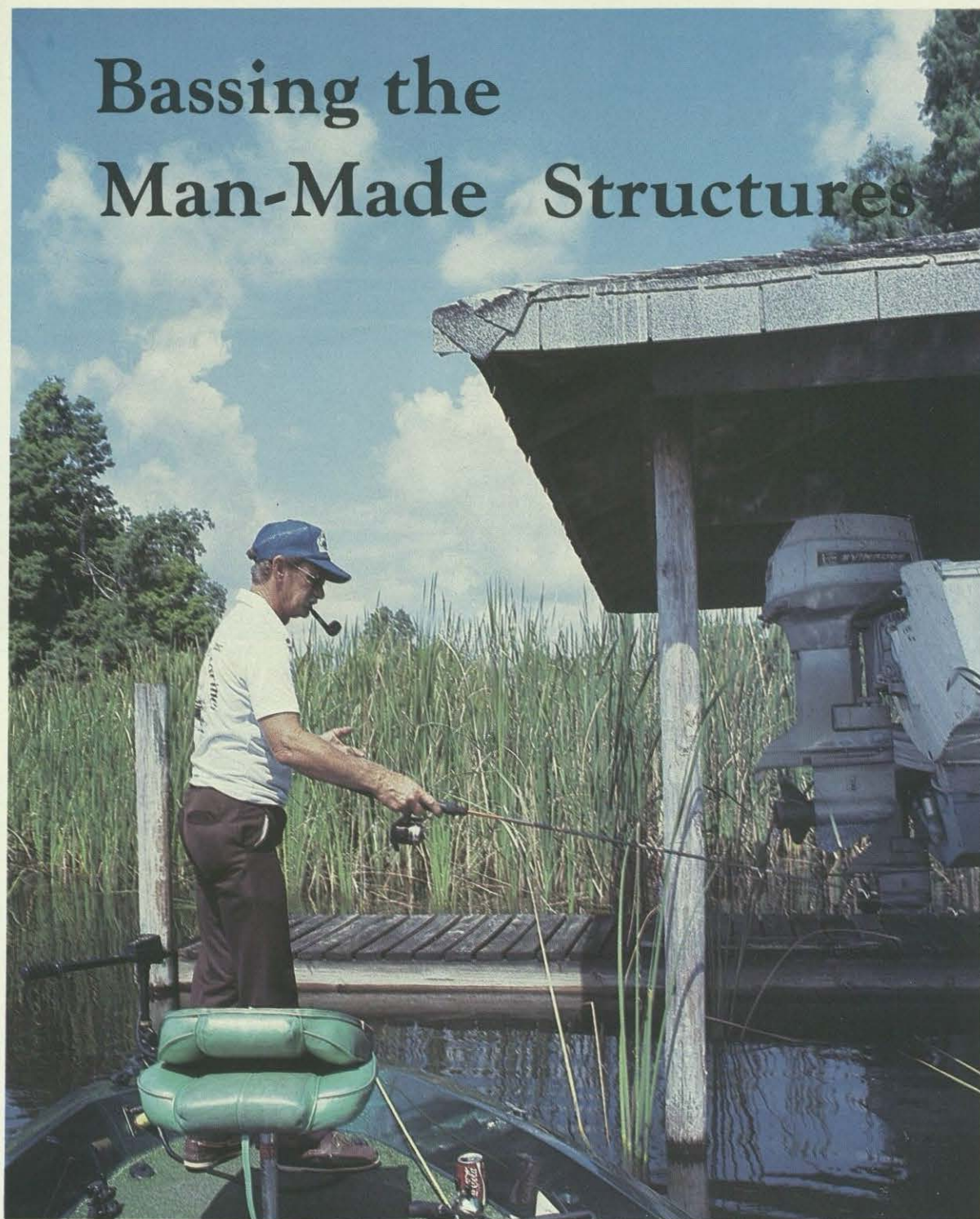
In the center of the impoundment, a quartet of snow geese were preening in the morning light, while great flocks of white ibises, herons and egrets were stalking through the cattails. From within the reeds, limpkins called to each other with their eerie wails. I was surrounded by the sights and sounds of wild Florida.

Later in the day while driving home to Saint Augustine, I had to wonder *what if?* What if Teddy Roosevelt and the people who followed had not cared? What if there was no refuge system or Duck Stamp Program? After all, where I stood that morning was only a short drive from the sprawling metropolis of Orlando. Would the teeming wildlife scene I had witnessed exist if there were no refuge system? Probably not.

Instead of going straight home, I stopped at a post office and bought another Duck Stamp. I figured it was a small price to pay to be an active participant in conserving so many species for the future. 🐾



Bassing the Man-Made Structures



Text and Photographs
By Larry Larsen

In lakes which have little natural structure, around artificial structure is an almost certain place to catch some nice bass. Don't assume water three to four feet deep around piers and pilings is too shallow; these structures are frequently close to deeper water and they do attract fish. Sometimes, bass linger around them for only a couple of hours; sometimes for months.

Lake fish will usually be in shallower water than you might expect when they are using man-made structures.

Food, cover and protection are things bass need, and objects such as docks and piers provide them. Depending on the availability of deep water elsewhere, these places often attract and hold many fish.

Long rows of pilings are good places to try. When feeding, bass frequently move among them, and in and out of nearby weedbeds. For this reason, weedbeds and other natural structures adjacent to docks and piers can be especially productive. And these places are fairly easy to find. ▸



Bass Movement Around Piers and Docks

Often, schools of largemouth bass will move en masse toward the shallows and feed along previously established paths. What better defined path could there be than shallow water along a pier or dock? Bass can be found there—if you know where to look.

Some piers and docks are much better than others and attention to subtle differences can result in heavier stringers for observant anglers. A key indicator for determining the better docks to fish is usually the algae growth on their crossmembers and supports. The more algae, and the longer the pilings have been in the water, the better your chances for finding a hungry bass waiting there.

Dock owners often try to create holding areas for fish beneath their docks by submerging brush in the water adjacent to or underneath the dock. Small bait fish congregate in these areas and they attract larger crappie, bluegill and largemouth bass.

I try to fish slowly around a pier. If I move along too quickly, only making a few casts, I'll often miss a catch. Don't believe all the bass will be near the end of a pier in the deepest water; many times I've caught them near the middle of a pier's length in extremely shallow water.

Tackle Tips

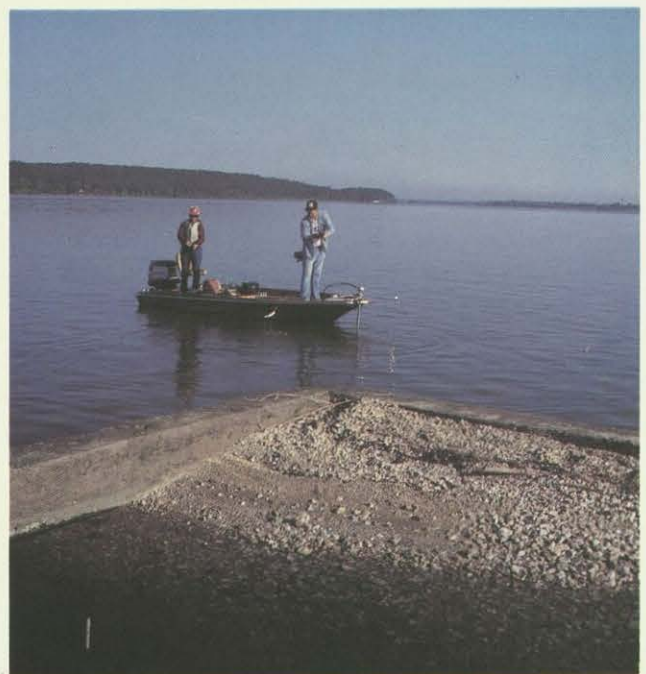
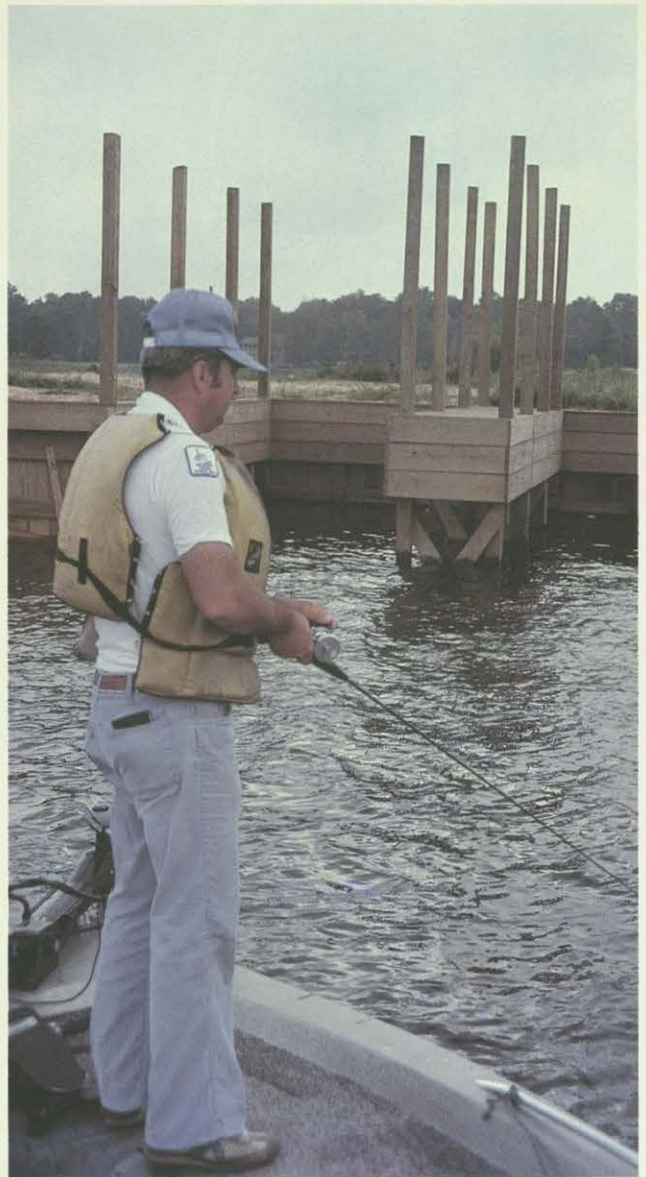
The prepared angler is most often the successful one. Very seldom will a bass grab a lure and run directly toward you (and away from the structure), but it does sometimes happen. Most fish seem to try to do "figure 8s" around submerged posts when they catch up with bait, so fishing around them requires strong line and tough gear to prevent entanglements and breakoffs. Also, it's usually necessary to set your hook quickly and horse the fish on out if you want to land it. Tackle must be up to the task of doing this.

I normally prefer 14- to 17-pound-test monofilament line when fishing around wooden structures such as pilings. My level-wind reels and heavy-action rods handle heavier line and the bigger bass I prefer to catch.

While fishing on a river one day, I tossed a tandem-hooked black worm rig to the foot of a piling on a wooden pier. A bass, suspended in the cool shade of the pier, instantly sucked in the lure. As soon as I felt the pick up, I set back on the rod. There was a powerful surge.

The bass powered the rod almost to a horizontal position before the drag screamed. The battle continued as I regained a few feet of line, then it darted around the post and snagged. I assumed the second hook on the rigged worm was embedded in the piling, so I reeled the rod down into the water and tried to poke it free. That didn't work, so I had to figure out another approach.

Minutes passed as I thought about the options and continued to feel the largemouth's surge. Finally, I exerted pressure on the line and the snagged hook gave way. After a last-minute battle at boatside, I hoisted a six-pounder into the boat; not a large fish by some ▷





standards, but it was a decent anchor for my day's string of nine bass, which had all been pulled from around man-made, wooden structures.

Plastic and Rubber Lures

I frequently use a Fishing Worm Salty Sensation when fishing around piers or docks because of its enticing action at very slow speeds. That particular lure is, in my opinion, the most productive pier, dock and piling fishing lure I have ever used. The majority of times, bass will pick it up on the initial cast as soon as it plummets to the bottom, and when they do, I'm ready.

Occasionally, bass will hit the bottom-hugger just as it leaves the pier and I begin to reel it toward open water. A chief advantage of this kind of worm is that it can be fished slowly and kept within the prime zone for several seconds.

Crank baits are also very effective around pilings and piers at certain times. I work my favorite shad models at hard-crank speed and I've been especially successful with them early and late in the day.

Other Man-Made Structures

The less common shallow-water habitats often yield healthy strings of bass when other areas won't. Don't overlook these when you're trying to establish a productive pattern. Net traps, for example, are utilized extensively in some places to capture shiners for use as bass bait. Shiners are chummed into the nets, which are placed on long poles stuck into the river or lake bottom. When chum (usually composed of bread dough, wheat

or some other grain products) is scattered to attract shiners, bass are apt to be nearby.

Concrete, wood, rock and metal bulkheads are intended to prohibit waves, currents and wind action from washing shoreline away, but they also prohibit encroachment of smaller aquatic life into the safety of extremely shallow water, where it's easier for them to escape from predators. Thus, bulkheads may concentrate bait fish where bass can better get to them, and where you can catch the bass.

Water flow control gates, dams, locks and spillways are also good structures to fish around. When water is released through them, the currents may attract bass on the downstream side. Bait fish frequently congregate in shallow areas below these structures when there is a flow of water.

Barges and boats sometimes sink during heavy winds, rains or storms, and when they do, many are abandoned. These wrecks can make excellent structure.

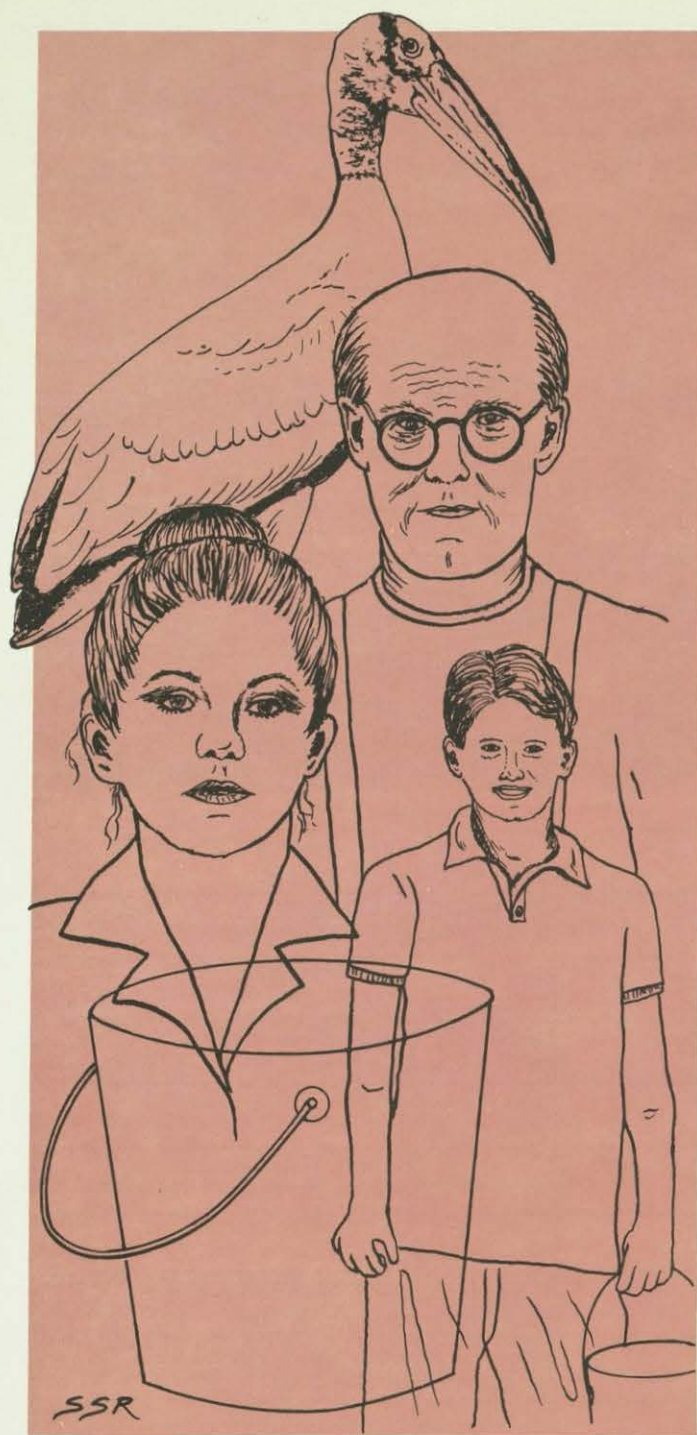
Duck blinds, permanently located in shallow water, aren't just for ducks. Most of these structures act like magnets for largemouth bass. Metal blinds, stake blinds and wire-covered hideaways all produce excellent angling under the right conditions. Blinds built to hide small duck boats usually have one open side and are constructed so that an angler can easily fish them.

Bridges usually increase the flow rate and areas around them often have deeper water, reduced water area and structure having good underwater growth.

You may have to cast to these various kinds of man-made structures six or seven times before enticing a bass, and when one does pick up the lure, it's time to get it up and head it out. 

FLORIDA'S RECORD FISH CATCHES THROUGH JULY 1986

FRESHWATER SPECIES	WEIGHT POUNDS—OUNCES	ANGLER AND WHERE CAUGHT
largemouth bass <i>Micropterus salmoides</i>	20 pounds, 2 ounces Not Certified	Frederick Joseph "Fritz" Friebe, Big Fish Lake (private) in Pasco County, May 1923.
largemouth bass <i>Micropterus salmoides</i>	17 pounds, 4-1/4 ounces Certified	Billy M. O'Berry, unnamed lake in Polk County, July 6, 1986
redeye bass <i>Micropterus coosae</i>	7 pounds, 0 ounces Certified	J.T. Reynolds, Apalachicola River, Gadsden County, June 1982
spotted bass <i>Micropterus punctulatus</i>	3 pounds, 12 ounces Certified	Dow Gilmore, Apalachicola River, Gulf County, June 24, 1985
Suwannee bass <i>Micropterus notius</i>	3 pounds, 14-1/4 ounces Certified	Ronnie Everett, Suwannee River, Gilchrist County, March 2, 1985
striped bass <i>Morone saxatilis</i>	38 pounds, 9 ounces Certified	Justin McAlpin, Lake Seminole, Gadsden County, November, 1979
white bass <i>Morone chrysops</i>	4 pounds, 11 ounces Certified	Richard S. Davis, Apalachicola River, Gadsden County, April, 1982
sunshine bass (hybrid bass)	16 pounds, 5 ounces Certified	Thomas R. Elder, Lake Seminole Jackson County, May 9, 1985
black crappie (speckled perch) <i>Pomoxis nigromaculatus</i>	3 pounds, 12 ounces Not Certified	John McGilvray, Newnans Lake, Alachua County, December 1978
flier <i>Centrarchus macropterus</i>	1 pound, 1 ounce Certified	Justin McAlpin, Lake Iamonia Leon County, July 5, 1985
bluegill <i>Lepomis macrochirus</i>	2 pounds, 14 ounces Certified	Seth Branch, private pond in Columbia County, April 7, 1985
redbreasted sunfish (shellcracker) <i>Lepomis auitus</i>	1 pound, 12-3/4 ounces Certified	Alvin Buchanan, Suwannee River, Dixie County, May 29, 1984
redear sunfish <i>Lepomis microlophus</i>	4 pounds, 13-3/4 ounces Certified	Joseph (Joey) Marion Floyd, Merritts Mill Pond, Jackson County, March 13, 1986
spotted sunfish (stumpknocker) <i>Lepomis punctatus</i>	13-1/4 ounces Certified	Coy Dotson, Suwannee River, Columbia County, May 1984
warmouth sunfish <i>Lepomis gulosus</i>	2 pounds, 7 ounces Certified	Tony David Dempsey, Yellow River (Guess Lake), Okaloosa County, October 19, 1985
chain pickerel <i>Esox niger</i>	8 pounds, 0 ounces Not Certified	Jimmy James, Lake Talquin, Gadsden County, July 1971
redfin pickerel <i>Esox americanus</i>	1 pound, 3/4 ounce Certified	Robert E. Wilcox Jr., Jr. Walton Pond, Okaloosa County, July 18, 1986
carp <i>Cyprinus carpio</i>	40 pounds, 9 ounces Certified	Bernard L. Rowan, Apalachicola River, Gadsden County, May 1981
channel catfish <i>Ictalurus punctatus</i>	44 pounds, 8 ounces Certified	Joe Purvis, Lake Bluff, Lake County May 1985
white catfish <i>Ictalurus catus</i>	16 pounds, 12 ounces Certified	Shawn James Williams, Caloosahatchee River, Lee County, April 1985
bowfin <i>Amia calva</i>	19 pounds, 0 ounces Certified	Jim Brown, Lake Kissimmee, Osceola County, November 1984
longnose gar <i>Lepisosteus osseus</i>	41 pounds, 0 ounces Certified	Evan D. Merritt, Lake Panasoffkee, Sumpter County, July 1981
American shad <i>Alosa sapidissima</i>	4 pounds, 10 ounces Certified	Phil Chapman, St. Johns River, Seminole County, February 1985
alligator gar <i>Attractosteus spatula</i>	No Record	No State Record Reported Minimum Qualifying Weight: 70 pounds
Florida gar <i>Lepisosteus platyrhincus</i>	No Record	No State Record Reported Minimum Qualifying Weight: 5 pounds



Growing Up With A Sense of Ethics

By John Waters Jr.

I grew up during the 1950s and 1960s in Hawthorne, a small two-traffic-light town that occupied only one square mile of Florida's rural Alachua County.

It was surrounded by woodlands, prairies, lakes, ponds and farms. In 1957, Hawthorne had no shopping malls for young growing boys to wander around in nor was there a skating rink, tennis court or movie theater.

The main entertainments for an 11-year-old, like I was that year, were riding bicycles, playing football or softball, roaming the woods, hunting, fishing and, after sunset, watching television. There were always lawns to mow, fences to mend, weeds to pull and leaves to rake, but my friends and I did not consider those healthy activities to be particularly entertaining.

1957 was the year I entered seventh grade, joined Boy Scouts of America Troop 133 and read my first copy of *Florida Wildlife* magazine. At that time in life, my favorite activities were fishing, hunting, hiking, camping, roaming the woods and studying everything alive. Most of my friends were interested in the same subjects.

Although we had Boy Scouts and 4-H Club, Hawthorne did not have an official conservation organization. Nevertheless there was a strong community consciousness of wildlife and a well-developed sense of ethics toward natural resources and their conservation. There was also great respect for landowners. Part of why this was so is the town was quite rural in character, and almost everyone had direct experience with hunting, fishing or farming the land.

Every sportsman I knew, including my father, John Waters Sr. and my grandfathers, George Waters and Homer Williams, had the same important lessons to teach me whenever I ventured with them into the woods and out on the lakes of north-central Florida. From the earliest trips, they instilled in me a set of ethical attitudes towards taking game and catching fish, and they made sure I understood the strict rules for protecting nongame species. Their teachings made it clear that observance of seasons, bag limits and fair methods of taking fish and game were more than just arbitrary rules—they were necessary to conserve the resource, and by Hawthorne standards, part of entering manhood.

It was a definite taboo in the small town of my youth to shoot anything that was not going to be used for food or tanned for its skin—with only a few exceptions, like rats and venomous snakes. I remember the day two of my friends were sternly reminded of that ethic by Sid Martin, a neighbor.

"Mr. Martin sure got mad at us," one of them told me afterwards. "We shot two of them ugly ol' wood storks, and while we walkin' back home with 'em—down Lochloosa Grade—he came driving by on his way to the watermelon field. He stopped the truck and blessed us out real good!"

"Yeah," the other friend added. "He told us we were breakin' the law by shootin' wood storks. He said it's against the law to shoot any waterbirds except ducks and coots." ▽

Mr. Martin, my dad and other men who taught their children and other children to hunt and fish never hesitated to correct us if we strayed from their teachings. They had direct experience with the scarcities brought on by the Great Depression and they were also keenly aware of the significant declines in wildlife populations that had occurred in most of Florida during their lifetimes. To them, conservation was the only way to save our resources, and they knew that required strict rules. The ethic was *waste not, want not*.

I was also influenced by our seventh grade science teacher that year, Mrs. Betty Landers, who was the daughter of noted herpetologist and naturalist Ross Allen. My fortunate association with her occurred under somewhat mischievous circumstances. As told to my mother, I was unhappy in seventh-grade singing class, and had pulled a prank one day that resulted in quite a bit of concern among some of the teachers about my probability for succeeding in chorus.

During a faculty meeting about the matter, Mrs. Landers volunteered to take me under her wing during chorus class period, and make me her laboratory assistant for the tenth-grade biology class. She must have somehow realized I couldn't "carry a tune in a bucket," but would dearly love carrying water in a bucket—especially from a wooded pond not far from the schoolgrounds to the science laboratory.

Fetching a pail of water was my first assignment as laboratory assistant. The biology class was studying one-celled animals and Mrs. Landers wanted the students to be able to view living bacteria and other microorganisms through the school's one and only microscope, an old brass-barrelled cast iron model.

Other duties as laboratory assistant included feeding her six captive rat snakes. That involved setting mouse traps around various places in our aged and worn two-story red brick school building, which had a healthy population of mice. I also was assigned to set up a microcosm in a five-gallon glass jug and tend to a colony of scavenger beetles. The beetles were kept on hand to skeletonize whatever dead critters might be brought to class by one of the country kids. I still remember the time someone brought in a six-foot diamondback rattlesnake, minus its menacing head. I skinned it, nailed the hide to a board to dry, then put the carcass in with the beetles. When nothing remained but pearly white bones, I was amazed at the complexity of its legless, but very mobile skeleton.

Those and many other hands-on experiences provided me with valuable opportunities to learn close up about wildlife and its physical, behavioral and biological characteristics. I also learned that there are great responsibilities involved in keeping wild animals in captivity. Those lessons cannot be learned nearly so completely from books, lectures or films.

...no one had to remind us of the ethics of visiting someone's property to camp, hunt or fish.

Outside Hawthorne were plenty of lakes for swimming and fishing, duck ponds, fields for dove and quail hunting and campsites. Although many of these resources were on private lands, or accessible only by roads across private lands, it was common, in those days, for landowners to welcome others to use them. We could camp out at the edge of a clear, unpolluted, unpopulated lake; fish for our supper and cook it on firewood gathered around the camp. We slept undisturbed under the stars and sometimes made morning breakfast that included fresh game.

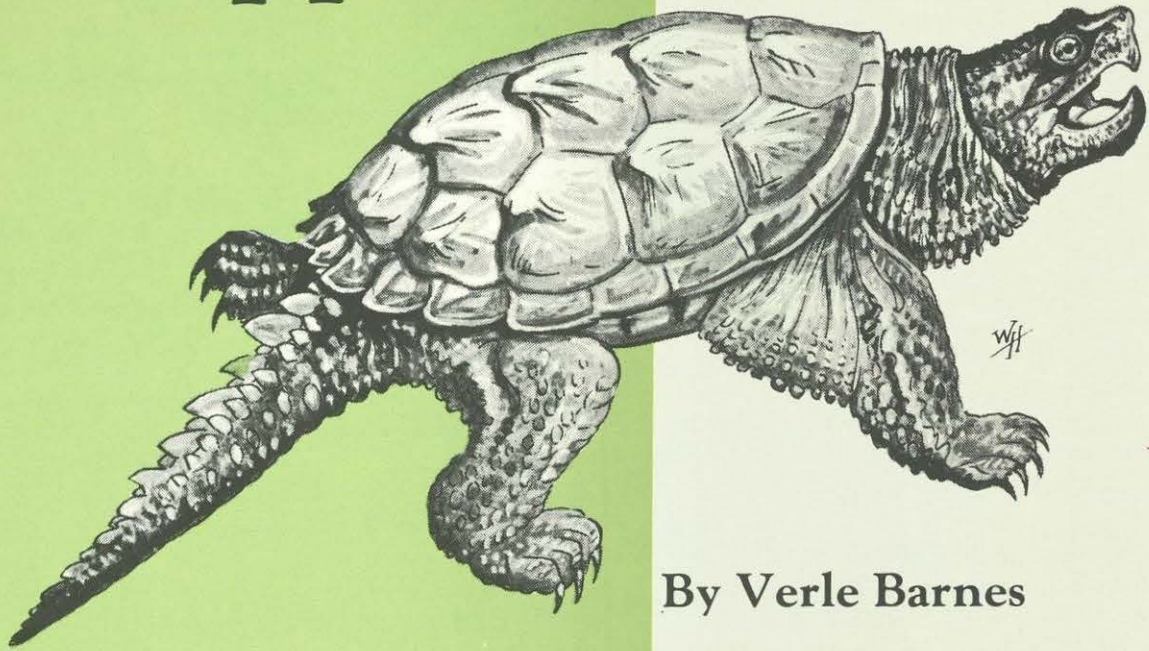
Even though we were young, no one had to remind us of the ethics of visiting someone's property to camp, hunt or fish. We had also been competently trained in safe firearms handling. That included the rule of always knowing where houses and farm buildings were and avoiding all shooting in their vicinity. We were taught to close gates if we found them closed and to be careful with fire. On someone else's land, we were expected to take only what we were going to use, and pack out or bury our own trash.

Today, such a rich diversity and availability of living resources, and local folks who are willing to share their land and its resources, are found in fewer places in Florida. Where modern urbanization has not changed the land and the people, places like Hawthorne was 30 years ago still exist, but for most of Florida's nearly 12 million people, small town life and the values that naturally go with it already have become unfamiliar to their daily life experience.

Children growing up in Florida during the 1980s are not as likely to have a pond near their schools or in their neighborhoods, where tadpoles and small fish can be caught. To camp out, they will most likely need transportation by automobile, rather than be able to bicycle or walk to a site. And it probably won't be free of any entry fee.

Although our state and its communities have changed much, the natural curiosity of young folks and their enjoyment of the outdoors is still as strong as ever. And even though the places to go are fewer and the fishing lakes more crowded, there is still room for parents, teachers and neighbors to take a kid fishing, hiking, camping, hunting or bird watching. There is still room in our urbanized society for the kind of small town ethics I grew up with. ❶

Snapper



By Verle Barnes

... an enormous creature that looked like it had walked directly out of the Dinosaur Age was crossing the path.

I crawled out of my tent early that June morning, before anyone else had roused themselves from sleep. We were camping out in the middle of Florida's Apalachicola National Forest. In the coolness of the summer morning, I submerged myself in the tannin-darkened water of Wright Lake, a spring-fed mirror of water about a half-mile, as the crow flies, from the main channel of the Apalachicola River. Refreshed and anxious to go by the time the other campers emerged from their tents, I ate breakfast and cleaned up afterwards with a zeal reserved for people who get excited by spending time in a vibrant, living wilderness.

I was the leader and instructor of a group of 10 carefully selected college students, and we were on our third day of a scheduled nine-day field trip to study coastal systems and the Apalachicola River and Apalachicola Bay systems in particular. It was our first and only night in the national forest. Later that afternoon, we planned to pack up and drive 30 or so miles farther to camp out two nights on St. George Island in the Dr. Julian G. Bruce State Park.

There was a lot to see and do before we left Wright Lake, and as I darted about the campsite and lake area, I must have resembled an over-sized gadfly flitting about. I knew there were natural treasures all around us—I had already seen many alligator eyes and water snakes the night before and I had heard the thunderous mating calls of the lake's biggest bull alligators. Their sheer numbers were hard to believe. I was hoping to see something special—although I didn't know what. I was thinking that sighting a white-tailed deer or red fox would be nice, or if I was lucky, seeing a bobcat in the light of morning. All of these species are special if you live in an area where they have all but disappeared, as I do. ▽

It probably could have dragged us into the lake.

What I happened upon was even better; an observation that would have been difficult to top under any circumstances. As I was walking by the lake on my way back to the campsite to grab my camera bag (which is like another arm to me, but which I unwittingly left behind), an enormous creature that looked like it had walked directly out of the Dinosaur Age was crossing the path. At first, I didn't recognize the mysterious critter, except that it was some kind of turtle. I knew it was too big to be a land turtle. It had enormous, spikes jutting up from the tip of its shell, an obvious warning that this particular turtle was not to be messed with.

I circled around the large turtle in a quick jog, not taking my eyes off its shell and its enormous, hawk-beaked head, stopping for a moment to observe it more closely. About that time, two of my students walked up from the campsite.

"Look at this!" I said excitedly as it reared its thick, mean-looking head at us and hissed a confident, back-off warning. The students, both 19-year-old men, were new to camping in a wilderness and they were unfamiliar with all the adventures that come with it. They carefully inched closer to the turtle, but not close enough for it to bite them, even if it extended its long neck out a yard and a half. And, it could have done that.

The turtle continued to hiss. It glared at me with its poor, but still penetrating vision as it inched itself closer to the waters of Wright Lake.

"Don't let it go in the water," I said to the two strong young men as I took off running to get my camera. Just as I hit full stride, I realized how ludicrous my request

had been. Immediately, I stopped and wheeled around.

An alligator snapping turtle as large as that one could have severely injured one of us if we had been close enough for its "snap" to grab us. It probably could have dragged any of us into the lake. There was no way the two students could have met my request to "keep it from going into the water" if the turtle had wanted to go in.

The turtle was still slowly crawling closer to the water while the two men stood frozen at a safe distance, uncertain of the possibilities of the turtle's enormous mouth. We decided just to observe it as the turtle eased itself into the lake, its ominous spikes making little swirls out of the clear spring water as it went under.

Later, with a field guide in hand, we determined the turtle was an alligator snapping turtle (*Macrolemys temmicki*), which might be called king of the freshwater turtles because it has no equal. The alligator snapping turtle is the largest freshwater turtle in the world. The book we referred to indicated the species grows to at least 26 inches across the carapace, with the record weight being at least 219 pounds. It has been known to live up to 58 years in captivity, according to that source.

By my estimation, the turtle we observed was in the neighborhood of 30 to 32 inches across the top of its shell, and while I might under other conditions admit to the possibility of some exaggeration because of the sheer excitement involved in an observation, I am willing to stand by my estimate as being fairly close.

The scutes, or "spikes," which run down the back of the carapace in three rows, are prominent and the species' characteristically large head is covered with pronounced plates. It has a "pig-like" nose and a menacing beak with a pronounced hook in its upper jaw. The eyes are large and set on the sides of the head.

▷



PHOTO BY JOHN WATERS JR.

That particular turtle was most likely a female that was returning from laying her eggs. She seemed determined to get back into the comfort and safety of the lake as soon as possible. Alligator snapping turtles rarely come out of the water, and usually it is only females which come out to lay eggs. Normally, they go ashore between April and July to lay, on the average, between 15 and 50 eggs. They are usually laid in a hole four to seven inches deep, which the female digs not far from water.

There is little for the alligator snapping turtle to fear in its natural habitat except for man, and possibly large alligators, especially for a turtle as large as we observed that day in June. The alligator snapping turtle spends most of its time on the bottoms of rivers, lakes, sloughs, canals or swamps, usually in deep water, where it often partly buries itself in the mud on the bottom. In addition to the alligator snapping turtle's size and impressive "prehistoric" features, its prowess in taking fish is unusual, but effective.

I wondered if there were others as large and imposing as that one...

On its tongue is a pink, fleshy extension that it uses as a "lure" to attract fish. As it lies motionless in the mud, except for its wriggling tongue, the enticing show of movement attracts fish. When one comes close enough to attempt to feed on this large fleshy parcel of "worm," the turtle grabs the fish in a lightning quick move of its muscular head, then devours it.

The species also eats other turtles, worms, crustaceans and many other creatures found in or near its freshwater aquatic habitat. And man sometimes eats the alligator snapping turtle, which is considered a delicacy.

As we watched the turtle boldly make its way into Wright Lake, I wondered how deep it would go before settling into the mud in a natural state of repose. I also wondered about swimming in the lake again, with such an awesome creature lurking about on its bottom. And I wondered if there were others as large and imposing as that one, and how many similar turtles exist in the waters and floodplain of the magnificent Apalachicola River.

Editor's Note: During recent years the alligator snapping turtle has declined in numbers, and the Commission has regulated the taking of this species. Current law prohibits the sale in Florida of this species, and prohibits taking alligator snapping turtles by the use of bucket traps, snares or shooting with firearms. It is illegal to possess more than one alligator snapping turtle, unless authorized by a special permit from the Executive Director. ⑦

Florida Alligator Snapping Turtles Grow Large

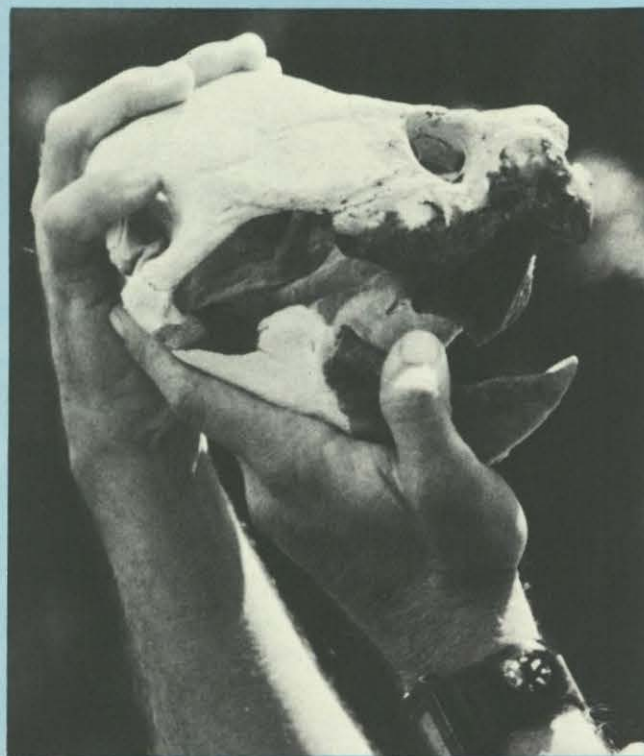


PHOTO BY JOHN WATERS JR.

While deer hunting during the 1986-87 season, Scott Chappell found the remains of a very large alligator snapping turtle. He was in the Gadsden County portion of the Robert Brent Wildlife Management Area when he found the turtle's giant skull, sections of the carapace and other bones.

"It was about 400 yards from Oklawaha Creek," he said. "And at first, I thought it was a sea turtle, because of its large size."

Scott's father, Carlton Chappell, works for the Commission's Division of Wildlife, and he identified it as an alligator snapping turtle. He too was surprised at its enormous size.

The Robert Brent Wildlife Management Area is not far from the place where Verle Barnes and 10 other campers were when they spotted their giant alligator snapping turtle. Oklawaha Creek drains into Lake Talquin, situated between Gadsden and Leon counties. Lake Talquin is in turn drained by the Ochlockonee River, which flows southward through the middle of the Apalachicola National Forest to the Gulf of Mexico.

—John Waters Jr.

It's The Law

By Major Kyle W. Hill

Is it legal for me to shoot an alligator on my own property?

No! Alligators are still protected by state and federal laws. Although the Commission will be liberalizing certain aspects of alligator regulations in the future, it is still a felony to kill an alligator. Killing an alligator may result in a fine up to \$5,000 and/or five years in prison.

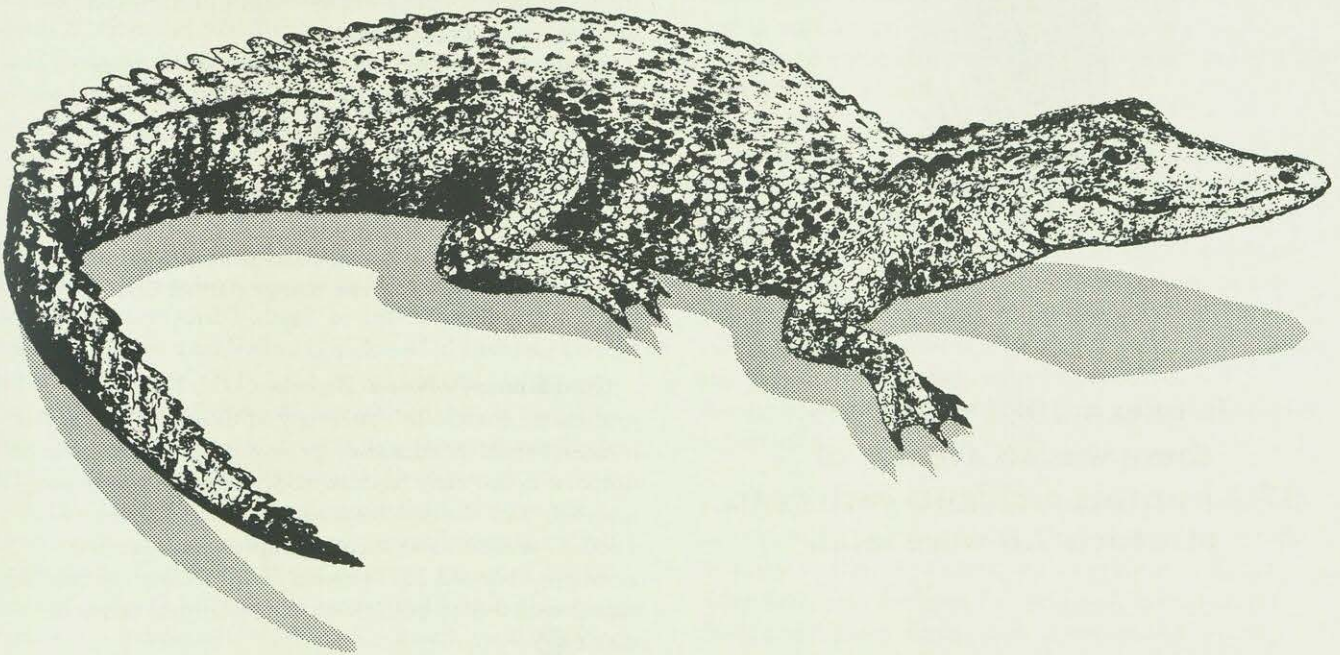
The Commission has a nuisance alligator program to deal with problem alligators. An alligator is considered to be a "nuisance" if it is at least four feet long and exhibits behavior that presents a real or potential threat to humans, pets or livestock.

Anyone encountering a nuisance alligator should immediately call the Commission's toll-free number (listed here on page 48 and in the front of most telephone directories) to make an official complaint. Nuisance alligators will not be relocated, but will be harvested by a Commission trapper. We have found through experience that relocating a potentially dangerous alligator will only result in continued problems in its new location.

Commission-sponsored legislation this year resulted in the passage of a law that will allow more flexibility in managing Florida's alligators. This law includes provisions that will provide for a limited taking of wild alligators by individuals licensed by the Commission.

The harvesting of wild adult alligators will not take place until 1988, and even then, it will be strictly regulated. There will be many safeguards in the program to preclude the possibility of illegally-taken alligators or hides reaching the legal market. Special hide skinning instructions and carefully orchestrated hunts in specific areas will be part of the new alligator management system. The Commission will be releasing more details about the new program in the future.

The alligator is still a very necessary and vital part of Florida's ecology. Careful management, including the removal of nuisance animals, will help ensure the alligator's future in the Sunshine State. 



By Timothy O. McNair



**Between 1981 and 1985,
there was an average of
37.1 hunting accidents each year,
of which 7.8 were fatal.**

As the evening sun sank lower into the horizon, a hunter waited alone in the shadows for deer. Anxiously, he eyed the scrub, searching for any signs of movement. A quick flash, a rustling in the bushes and he leveled his rifle and fired. But the deafening thunder of the blast faded away and was replaced by a cry of pain. He had shot another hunter in the leg! Fortunately, the wound healed.

Elsewhere, a second hunter was scanning the brush around his tree stand, and in the dim light, saw something large moving. The man in the bushes that received the shotgun blast in the back was not as lucky as the other victim—he died.

Extra care and common sense could have prevented these accidents, which both involved hunters who mistook humans for game.

Approximately 231,000 residents bought a license to hunt in Florida last year. Between 1981 and 1985, there was an average of 37.1 hunting accidents each year, of which 7.8 were fatal. Forty-one percent of the accidents were situations where a hunter mistook the victim for game or the victim was in the line of fire.

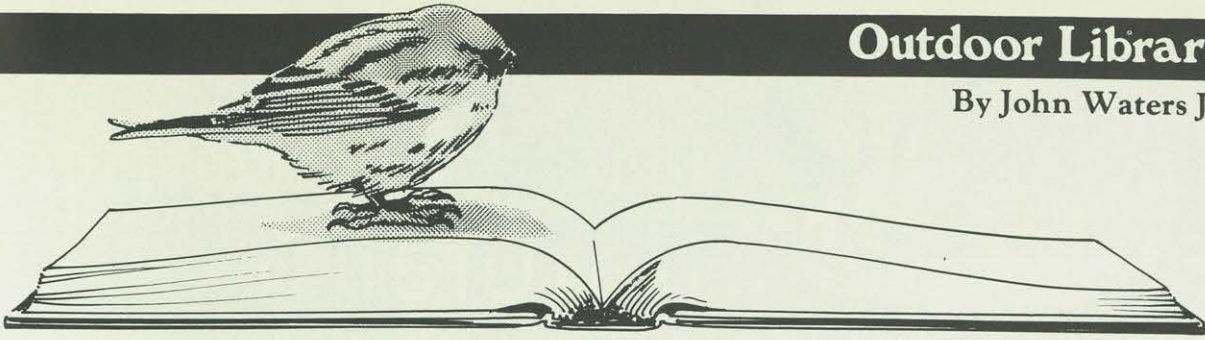
In response to a greater need for safety afield, the 1986 Legislature and former Governor Bob Graham passed a new law which, for the 1986-87 hunting season, required hunters to wear at least 500 square inches of visible "blaze orange" while hunting deer on wildlife management areas.

Although long-range statistics for wearing blaze orange in Florida are not in yet, in other states where it is required, accident rates have been lower than before blaze orange was required.

During Florida's 1986-87 season, there were 29 hunting accidents; three were fatal. It is hoped we will continue to see less hunting accidents during the future as more hunters make blaze orange part of their outdoor gear.

Coordinator's Note: Timothy O. McNair is a journalism student at University of Central Florida. His interest in hunter education prompted this article. As he noted, it is too early to draw conclusions as to the long-term effect of the new blaze orange law; however, the 1986-87 season's statistics are impressive. Hunting accidents dropped 22.5 percent to 29 total accidents (all types) with a 61.6 percent drop in fatalities, down to three. ⑦

— Captain Ed Tyer



The Philosophy and Practice of Wildlife

Management is designed as a textbook for students, working wildlife managers and other readers who want to think beyond ecology and biology. Written by professors Frederick F. Gilbert, Ph.D. and Donald G. Dodds, Ph.D. (both are professional wildlife managers and consultants), the book provides a detailed overview of important economic and political foundations affecting modern methods of wildlife management. Its scope is worldwide and its subjects include historical perspectives, man and wildlife, biological bases for management, management systems, management of particular species, habitats and environmental impact assessment. Although intended as a technical work, serious conservationists can also gain valuable insights into the world's current wildlife problems from this fine book. Published in 1987 by Robert E. Krieger Publishing Co., Malabar, FL.

A Field Guide to Coastal Wetland Plants of the Northeastern United States is useful even in the South because there are so many "northeastern" species described in this book which also grow here. Written by Ralph W. Tiner Jr., a regional wetland coordinator for the U.S. Fish and Wildlife Service, it is both a useful field guide for identifying common coastal wetland plants and a professional ecologist's overview of coastal wetland ecosystems. This excellent work has black and white drawings. Published in 1987 by The University of Massachusetts Press.

For pocket knife and old fishing lure collectors, **American Premium Guide to Pocket Knives—Identification and Values**, by Jim Sargent; and **Identification and Value Guide—Old Fishing Lures and Tackle**, by Carl F. Luckey, are valuable additions to the Outdoor Library. Alabama resident Jim Sargent has devoted the last two decades to collecting, trading and teaching about pocket knives. He is one of America's recognized experts in the field, and his book is reflective of his knowledge of pocket knives as collectibles. Carl F. Luckey is equally expert in a broad field of collectibles. He also has written books about figurines, bird decoys, Norman Rockwell, antique silver and Depression Era glassware. His new work is comprehensive; a must for anyone who has an interest in old, handmade fishing lures. Both books were published in 1986 by Books Americana Inc., Florence, AL.

A Field Guide to Atlantic Coast Fishes is a 1986 release in the Peterson Field Guide Series, published by Houghton Mifflin Company of Boston. Sponsored jointly by the National Audubon Society and the National Wildlife Federation, this comprehensive publication culminates almost 25 years of planning and illustration. Written by C. Robins, a noted ichthyologist at University of Miami; and G. Carleton Ray, a University of Virginia environmental research professor, its typical field guide format of short, concise descriptions makes it a valuable one-of-a-kind tool for identifying most of the nearly 1,100 fish species found in the Atlantic Ocean and Gulf of Mexico. Accurate illustrations (420 of them in color) by John Douglass and Rudolf Freund help make this a quick, accurate reference.

Vic Dunaway's Complete Book of Baits, Rigs & Tackle is now in its sixth printing by Wickstrom Publishers Inc., Miami, FL. Although some of its contents will be "old hat" to experienced Florida anglers, many newcomers to the state and hook-and-line novices will find a wealth of practical information in this book. Its very readable contents explain fishing tackle, knots, wire wraps, leaders, rigs, baits, lures and other subjects of particular interest to those who fish Florida's fresh waters and seas.

Florida Flavors for Natives and Newcomers, sponsored by The Environmental Studies Council Inc., is a spiral-bound potpourri of recipes which feature traditional Florida foods. Everything from snacks and appetizers to main course dinners has been crammed into this somewhat folksy project. The "Wild Things" chapter is quite different fare, giving recipes for alligator tail, armadillo, wild hog, dove and quail breasts, stroganoff, soft shell turtle, venison, cattails, elderberry ice cream and other wild foods.

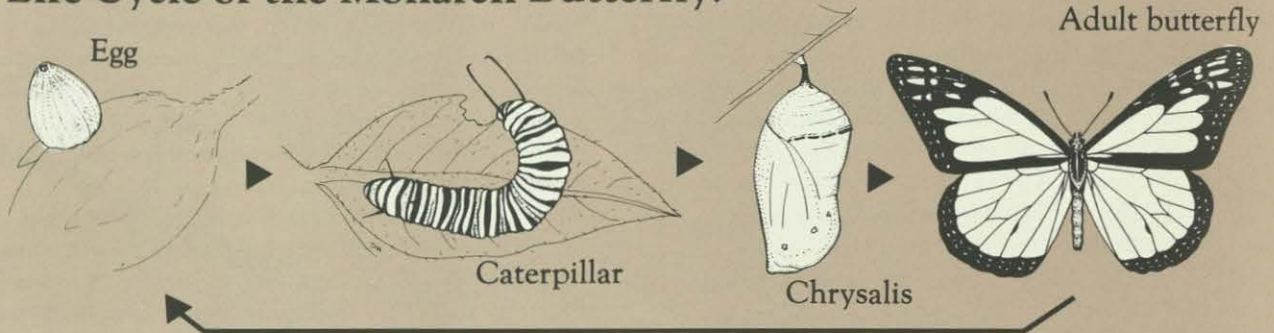
Songbirds in Your Garden is a comprehensive guide to attracting, feeding and enjoying common songbirds. Written by John K. Terres, with a preface by Roger Tory Peterson, the book has practical sections about feeds and feeders, birdhouses, drinking and bathing water, ornamental plantings to benefit birds, sound calling to attract them and many other interesting facts about birds and their behavior. Published in 1987 by Harper & Row, Publishers, New York. 



The Emerging Naturalist

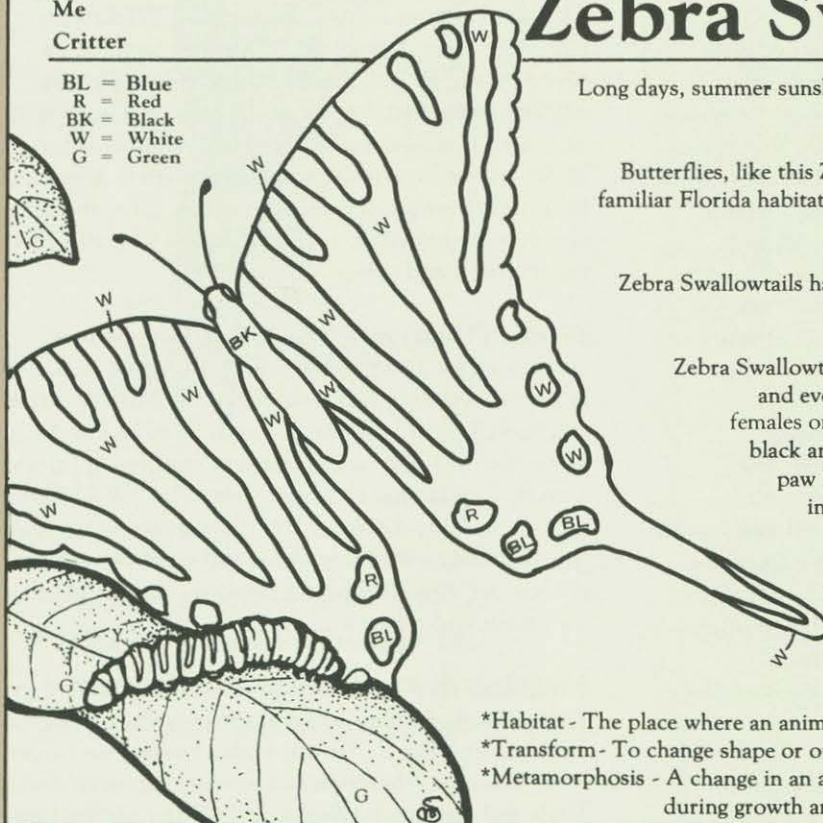
By Judy Gillan and Swannee Nardandrea

Life Cycle of the Monarch Butterfly:



Color
Me
Critter

BL = Blue
R = Red
BK = Black
W = White
G = Green



Zebra Swallowtail

Long days, summer sunshine and bright fragrant flowers are ideal conditions for nectar-loving butterflies.

Butterflies, like this Zebra Swallowtail, can be found in many familiar Florida habitats* from swamps and open woodlands to parks and backyard gardens.

Zebra Swallowtails have white to blue-green wings with black stripes just like the four-legged zebras!

Zebra Swallowtails are very picky about where they live and eventually lay their eggs. Zebra Swallowtail females only lay their eggs on pawpaw plants. The black and yellow caterpillars that hatch eat pawpaw leaves until they are ready to transform* into adult butterflies. This transformation is called *metamorphosis*.

Zebra Swallowtails often gather at mud puddles or lake shores to drink water or just bask in the warm sun.

*Habitat - The place where an animal lives.

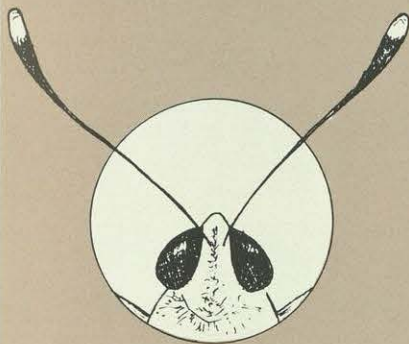
*Transform - To change shape or outward appearance.

*Metamorphosis - A change in an animal's physical appearance during growth and development.

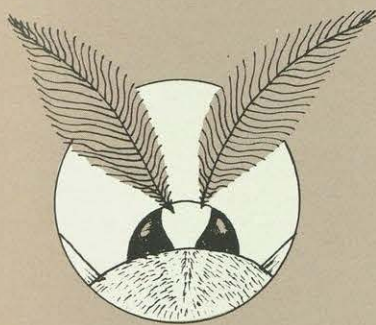
BEAR IN MIND

Summertime Is Butterfly Time!

Watching butterflies and moths means lots of summertime fun. A butterfly and moth watcher must know where and when to look and how to tell the difference between butterflies and moths.



Butterflies are thin-bodied, colorful insects with antennae (feelers) that are thicker and wider at the end. Butterflies love sunlight and usually search for food during the day.



Moths, also insects, usually have thick furry-looking bodies with feathery antennae coming to a point at the end. Unlike butterflies, many moths are drably colored and most are active at night.

CRITTER CRAFTS

Nothing Methods



Blend these together in a large bowl or bucket. Then leave this fruity brew out in the sun for just a couple of hours. Don't leave the juice in the sun too long or it will evaporate. In the late afternoon, paint the sugar juice on old stumps, rocks or fence posts.

There are two sure ways to attract nighttime moths in order to observe them.

Moths are attracted to lights and only recently are biologists beginning to understand why. We do know that the light disorients the moths and causes them to circle and drift toward the light. The light confuses the moths and interferes with their normal reproductive cycle. Therefore, using light to deliberately attract moths is not recommended, since it encourages abnormal behavior.

The second method, called "sugaring" is a natural! Most moths are attracted to a variety of sweet-smelling things, including rotting fruit. Sugaring allows one to observe moths in normal behavior.

We can make our own "sweet stuff" to attract moths. A typical sugaring recipe consists of these ingredients:

- one pound of sugar
- one mashed, overripe banana
- one cup molasses or syrup
- one cup fruit juice



Another way to use the sugar juice is to soak sponges in the liquid and hang them from tree limbs. In contrast with the painting method, the sponge method leaves no sticky mess.

As night falls, return to your sites with a flashlight. You should see moths enticed in from all directions by your bait. Bring a field guide to help you identify your new friends.

Sugaring attracts many moths and will provide an unique adventure into the nighttime insect world.

Conservation Update

By John Waters Jr.

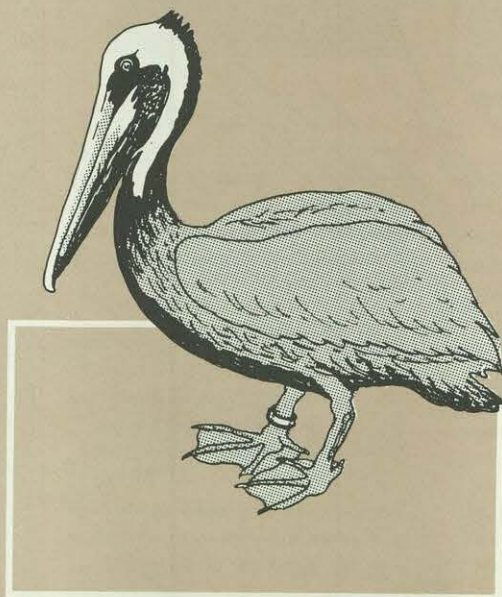
Have You Seen Any Pelicans Wearing Blue or Yellow Bands?

Commission biologists, in cooperation with the Department of Natural Resources, have been studying a new colony of nesting brown pelicans at St. Andrews Bay, near Panama City. The pelicans have been nesting and rearing their young on tiny Audubon Island there for five years.

The closest brown pelican colonies to the Audubon Island group are at Cedar Key to the east, and along the coast of Louisiana to the west.

As part of the studies, explained the Commission's endangered species coordinator, Don Wood, numbered aluminum leg bands and either blue or yellow bands have been fitted to some 450 to 500 juveniles since the colony was first established. The young birds were banded before they left their nests. Blue bands were used in the first two years of the study, and yellow ones have been used in recent years.

The new colony has provided researchers a first-time opportunity to study a newly formed breeding group of brown pelicans. The data gathered from the study are expected to tell more about the dispersal habits and intercolony movements of young birds as they mature.

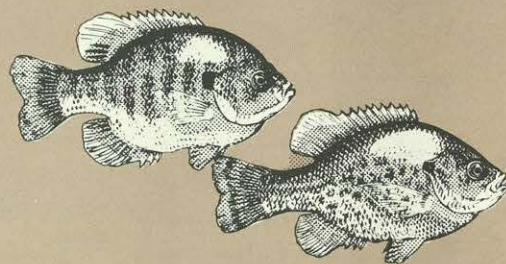


If you see a brown pelican wearing a blue or yellow leg band, please report the date and location of your sighting to Don Wood, at (904) 488-3831.

Fish & Wildlife Funds Total \$248 Million

Sport fishing funds to be distributed for fiscal year 1987, under authority of three federal aid programs, total \$248 million. The three programs are the "Dingell-Johnson" (Federal Aid in Sport Fish Restoration Act) Program, the "Wallop-Breaux" Expansion Program and the "Pittman-Robertson" (Federal Aid in Wildlife Restoration Act) Program.

Florida's share of the funds are \$1,413,895 from Dingell-Johnson, \$1,712,928 from Wallop-Breaux and \$2,082,922 from Pittman-Robertson, totaling \$5,209,745 for the year.



Apopka Sediments To Be Studied

The St. Johns River Water Management District recently provided \$300,000 to finance studies of Lake Apopka's bottom sediments. Once one of the state's finest sport fishing lakes, its 30,671 acres now contain one of Florida's most polluted freshwater bodies. It may cost as much as \$100 million and take two to three decades to clean up the lake, experts say.

Although nutrient-rich agricultural, municipal and industrial runoff water from farms, sewage treatment facilities and food processing plants have long been considered primary causes of the lake's pollution, these sources have been greatly reduced in recent years. The new sediment study is designed to determine how and to what extent the lake's massive algae population is contributing to current problems in the lake.

It is possible that algae are now compounding the lake's pollution problem. When algae die, their absorbed nutrients are recycled back into the aquatic system, where they can be reabsorbed by more algae. Phosphorous and nitrogen compounds are the two principle pollutants in Lake Apopka contributing to this process. ▷

Nature Notes

Audubon's Crested Caracara and the Florida Scrub Jay were added to the Federal List of Threatened and Endangered Species in July, making them eligible for special funding to study and protect them.



Eels Found in Florida's Fresh Waters are the same species found in salt water. The so called freshwater eel is hatched in the Sargasso Sea and it spends the early stages of its development in the ocean. At a later life stage, eels migrate into fresh water, sometimes slithering over land to get from one stream, swamp or lake to another.

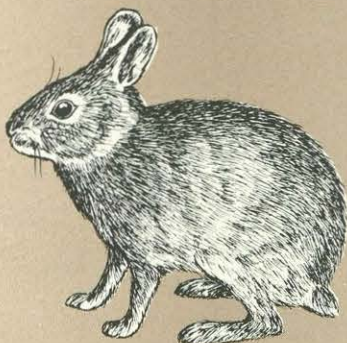
Spadefoot Toads spend most of their adult lives underground. Following heavy rains during the breeding season, they emerge and mate in temporary pools such as puddles. The tadpoles must mature very quickly or die when these pools dry up.

Our Common Anoles are members of the Iguana family, which also includes exotic species that grow to several feet in length. Our little anole, however, seldom exceeds five or six inches in length.

Red-Bellied Water Snakes typically congregate—sometimes in groups of hundreds—for breeding. This usually occurs in late spring or early summer.

The Cattle Egret first became established in Florida near Lake Okeechobee, around 1950. It now ranges casually as far north as eastern Canada.

The Marsh Rabbit occurs in all of Florida's 67 counties. This game species can be hunted year-round.



To Our Readers...

We apologize for the later-than-usual delivery of this issue to you. We have recently been in a "transition" period with our production, and this has temporarily slowed us down. We hope you find the magazine worth waiting for.

Sincerely,
The Staff

Free Nongame Wildlife Booklet Available

Planting a Refuge for Wildlife is a new, colorfully illustrated booklet that tells "how to create a backyard habitat for Florida's birds and beasts." Written and edited by Susan Cerulean, Celeste Botha and Donna Legare, its 36 pages provide a useful, informative guide to the basic concepts of landscaping human habitat to be compatible with birds and other small wildlife.

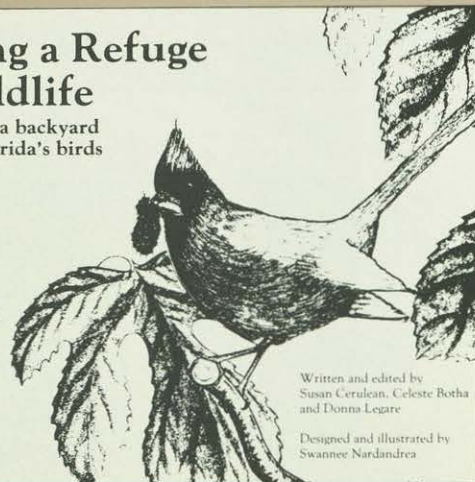
The booklet includes recommended plant lists for southern and northern Florida, tips for attracting some of our most interesting songbirds, recommended dimensions for building birdhouses and a section about native plants. Design and illustrations by Swannee Nardandrea add a refreshing sparkle. Published by the Florida Game and Fresh Water Fish Commission Nongame Wildlife Program and the U.S. Department of Agriculture Soil Conservation Service, free single copies are available from: Nongame Wildlife Section, Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600.

Planting a Refuge for Wildlife

How to create a backyard habitat for Florida's birds and beasts.

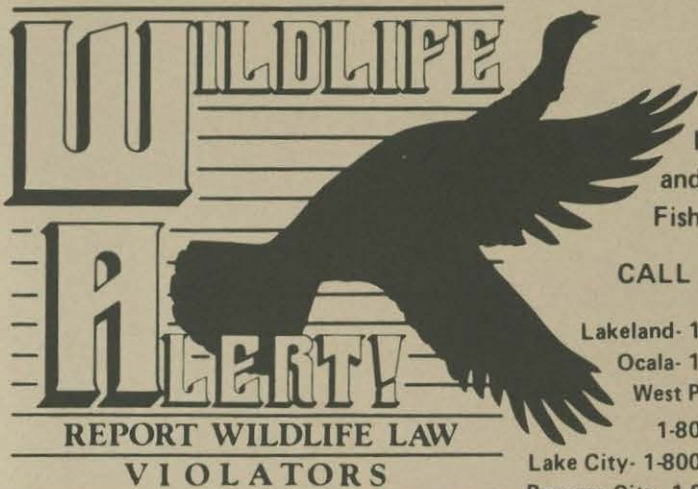
Florida Game and
Fresh Water Fish
Commission
Nongame Wildlife
Program

United States
Department of
Agriculture
Soil Conservation
Service



Written and edited by
Susan Cerulean, Celeste Botha
and Donna Legare

Designed and illustrated by
Swannee Nardandrea



Florida Game
and Fresh Water
Fish Commission

CALL TOLL FREE

Lakeland- 1-800-282-8002
Ocala- 1-800-342-9620
West Palm Beach-
1-800-432-2046
Lake City- 1-800-342-8105
Panama City- 1-800-342-1676

ARE YOU MOVING?

Please Use This Form (or a copy) for Address Changes.

Attach a recent magazine address label here

Please type or legibly print your new address below:

Name

Address

City

State

ZIP

EFFECTIVE DATE OF CHANGE:

MAIL TO: FLORIDA WILDLIFE, 620 South Meridian,
Bryant Building, Tallahassee, FL 32399-1600

IF YOU MISS AN ISSUE

Please Use This Form (or a copy) to Request Replacements

Name

Address

City

State

ZIP

ISSUE NOT RECEIVED:

(Months and Year)

MAIL TO: FLORIDA WILDLIFE, 620 South Meridian,
Bryant Building, Tallahassee, FL 32399-1600

This publication was produced at an annual cost of \$47,880, or \$1.68 per copy, to provide information to the public about wildlife resources and their conservation. Subscription revenues defray a substantial portion of the above-listed cost of magazine production.

STATE OF FLORIDA GAME & FRESH WATER FISH COMMISSION

Commissioners

THOMAS L. HIRES SR.

Chairman
Lake Wales

MRS. GILBERT W. HUMPHREY

Vice Chairman
Miccosukee

WILLIAM G. BOSTICK JR.

Auburndale

C. TOM RAINEY, D.V.M.

Miami

DON WRIGHT

Orlando

Administration

ROBERT M. BRANTLY

Executive Director
620 South Meridian Street
Tallahassee, Florida 32399-1600
(904) 488-1960

ALLAN L. EGBERT, Ph.D.

Assistant Executive Director

WILLIAM C. SUMNER, Director
Division of Administrative Services

BRANTLEY GOODSON, Director
Division of Law Enforcement

FRANK MONTALBANO, Director
Division of Wildlife

SMOKIE HOLCOMB, Director
Division of Fisheries

BRADLEY J. HARTMAN, Director
Environmental Services

DENNIS "DUKE" HAMMOND, Director
Informational Services

Regional Offices

Northwest Region

T.L. GARRISON, Director
Route 4, Box 759
Panama City, FL 32405
(904) 265-3676

Northeast Region

LARRY MARTIN, Director
Route 7, Box 440
Lake City, FL 32055
(904) 752-0353

Central Region

ROBERT B. BUTLER, Director
1239 S.W. 10th Street
Ocala, FL 32674
(904) 629-8162

South Region

J.O. BROWN, Director
3900 Drane Field Road
Lakeland, FL 33803
(813) 644-9269

Everglades Region

Dan Dunford, Director
551 North Military Trail
West Palm Beach, FL 33415
(305) 683-0748



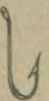


LET'S GO FISHING

PANFISH AND SMALL BASS FISHING RIGS FOR THE BEGINNER - FOR RECREATION TRY FISHING!

HOOK SIZES

#14



FOR BREAM and SPECKLED PERCH

#10



#8



FOR BASS

TO HELP MANAGE AND CONSERVE WILDLIFE AND FIGHT POLLUTION - BUY A FISHING LICENSE

USE EITHER ROD AND REEL OR CANEPOLE

LINE

USE 10 OR 15 POUND TEST MONOFILAMENT - WITH CANEPOLE LINE SHOULD BE SAME LENGTH AS POLE

PLASTIC RED AND WHITE - EASY TO SEE



CORK



BOBBERS

ADJUST BOBBER ON LINE ACCORDING TO DEPTH OF WATER - RE-ADJUST UNTIL FISH ARE LOCATED



SINKER

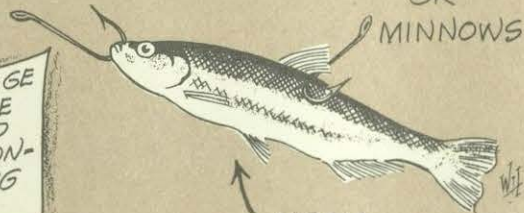
BB SHOT - ADJUST 6" ABOVE HOOK

SIMPLE KNOT FOR TYING LINE TO HOOK - PULL TIGHT!



BAIT

USE EARTHWORMS, CATALPA WORMS, BONNET WORMS, CRICKETS OR MINNOWS



HOOK MINNOWS BEHIND DORSAL FIN OR THROUGH LIPS

